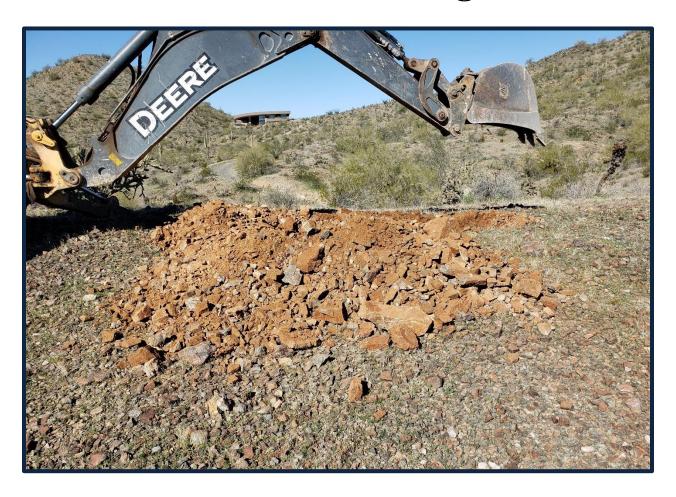
# **Geotechnical Investigation**



# Aloravita – Phases 3 and 4

67th Avenue and Jomax Road Peoria, Arizona ProTeX Job No.: 9821

Report Prepared for: Shea Homes and the Arizona State Land Department







#### PHOENIX 1102 W SOUTHERN AVE, STE 4 TEMPE, ARIZONA 85282 (O) 602-272-PTX1 (7891) DISPATCH 602-272-7890 (F) 602-272-7892

WWW.PROTEX-AZ.COM



TUCSON 916 W GRANT ROAD TUCSON, ARIZONA 85705 (O) 520-352-1050 (EXT 157) DISPATCH 520-352-0150 (F) 520-352-0150 WWW.PROTEX-AZ.COM

February 11, 2020 (Revised February 12, 2020)

Shea Homes Arizona State Land Department

**Re:** Geotechnical Investigation

Project: Aloravita – Phases 3 and 4

67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821

Attention: Mr. Matt Telban

At your request, ProTeX has completed a soil investigation for the subject project. The accompanying report includes field observations and laboratory testing supporting our conclusions and recommendations for the buildable area within the proposed development.

Respectfully submitted,

**ProTeX - the PT Xperts, LLC** 



Date Expires: 3/31/2021 Thomas M. Perkins, P.E.



Date Expires: 3/31/2022 Delbert A. Rapier, M.S.E., P.E.

ProTeX Job No.: 9821



# **TABLE OF CONTENTS**

1.0	INTRODUCTION	3
1.1	Scope	3
1.2	Proposed Site Development	3
1.3	Terms and Conditions	3
2.0	FIELD AND LABORATORY TESTING	2
2.1	Geotechnical Site Reconnaissance	
2.2	Historical Aerial Investigation	3
2.3	Field Investigation	
2.4	Laboratory Testing	
3.0	GENERAL SITE CONDITIONS	7
3.1	Soil Stratigraphy	
3.2	Site Geology	
3.3	Potential for Soil Hydro-Collapse (Settlement Potential)	
3.4	Potential for Soil Expansion (Expansion Potential)	
3.5	Potential for Corrosion	
3.6	Seismic Survey	8
3.7	Excavation and Workability	10
3.8	Earth Fissure Review	12
3.9	Seismic Characteristics	12
3.10	Liquefaction Potential	12
3.11	Flood Plains	12
3.12		
3.13	Shrinkage/Swell	13
4.0	RECOMMENDATIONS	13
4.1	Foundations	14
4.	1.1 Conventional Foundation System for Patios and Site Walls	
4.	1.2 Post-tension Slab-on-Grade Foundation System	
4.2	Exterior Slab-on-Grade	
4.3	Lateral Loadings	
4.4	Drainage	
4.5	Slope Stability	
4.6	Preliminary Pavement Section Recommendations	18
5.0	SITE PREPARATION	19
6.0	CLOSURE	21
6.1	Limitations	21
6.2	Recommended Additional Services	22



# **APPENDICES**

# <u>Appendix A – Laboratory Test Results</u>

Grain Size Distribution, Atterberg Limits and Expansion Tests Chloride, Sulfate

# <u>Appendix B – Site Information</u>

Boring Locations
Backhoe Test Pit Locations
Seismic Line Locations
Refusal Depth Contour

# <u>Appendix C – Field Testing</u>

Boring Logs Backhoe Test Pits Logs

# Appendix D – Field Testing

Seismic Refection Lines

# <u>Appendix E – USCS Classification Chart</u>

Legend



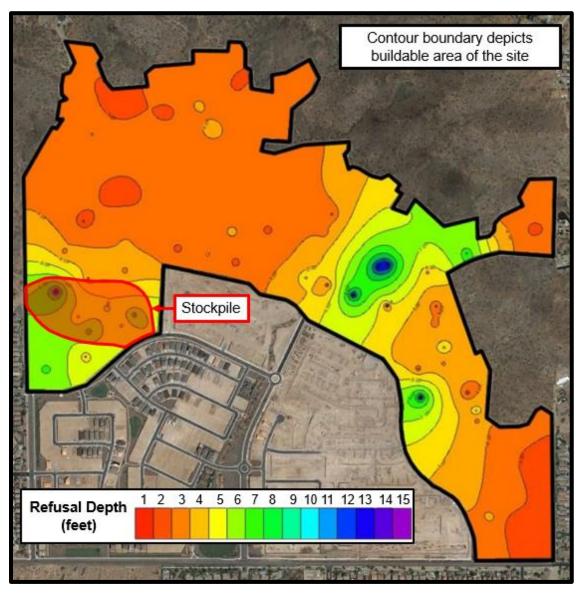
# **Executive Summary**

ProTeX was contracted by Shea Homes and the Arizona State Land Department to provide general information with respect to the engineering characteristics of onsite soils and provide recommendations for foundations and pad preparation of residential structures for the anticipated buildable area within Aloravita – Phases 3 and 4, located at 67th Avenue and Jomax Road in Peoria, Arizona.

Field investigation consisting of a combination of 8 inch auger borings, backhoe test pits and seismic refraction survey with laboratory testing of bulks samples. The field observations and laboratory testing indicated that the site consists mainly of silty sand, silty clayey sand, clayey sand, clayey gravel, silty gravel, silty clayey gravel and sandy clay soils all underlain by varying rock/cemented stratums. The expansion potential for site soils when foundation bearing soils are exposed to a moisture increase is anticipated to be very low to medium for the surface level soils. All lots are subject to expansive soils and post-tensioned slab/foundation systems are recommended.

Refusal of test borings and backhoe tests pits indicated that there is a significant stratum of weathered rock and/or strongly cemented soil with gravel and cobbles which will increase the difficulty of excavation. Seismic lines performed indicated the same conclusions. Based on the field investigation, geologic maps for the area, and local experience, the site is anticipated to encounter hard dig conditions during excavation activities. The field testing indicates refusal depths as shallow as 2 feet below with the existing ground elevation due to weathered rock and/or strongly cemented soils with grave and cobbles. The following figure provides a contour map with estimated depths of varying excavation difficulty based on the drilled test holes, backhoe test pits and seismic refraction survey. The boundary displayed in the image below was approximated based on the 20% Slope Line Displayed on the Phase 3 &4 Land Use Plan produced by CVL Consultants (20 November 2019).





The site is located within an area of regional groundwater withdrawal; however, based on the Earth fissure Maps provided by the Arizona Geological Survey, there is no indication of earth fissures on site or within approximately 12.3 miles of the site. All parties should be aware that the site soils are clayey and have a potential for expansion. Fluctuation in moisture content of foundation bearing soils may result in slight movements that may result in cosmetic distress.

ProTeX Job No.: 9821



## 1.0 INTRODUCTION

# 1.1 Scope

ProTeX was retained by Shea Homes and the Arizona State Land Department to evaluate the surface and subsurface soil conditions. The report contains the findings from the field exploration and laboratory testing, with supporting recommendations for the anticipated buildable area within the proposed development boundaries.

# 1.2 Proposed Site Development

It is this firm's understanding the proposed development will consist of one or two story single family residential structures using masonry, wood and/or steel frame construction imposing relatively light to moderate foundation loads.

#### 1.3 Terms and Conditions

This report was prepared for Shea Homes and the Arizona State Land Department. The contents of this report may not be relied upon by any other party without the expressed written permission of ProTeX - the PT Xperts, LLC and the written permission of Shea Homes and the Arizona State Land Department. The report presents site conditions at the time of the investigation and for the aforementioned proposed development. The report should be updated prior to construction if a maximum of one year has elapsed from the issued date.



## 2.0 FIELD AND LABORATORY TESTING

#### 2.1 Geotechnical Site Reconnaissance

The site consists of approximately 269 acres of native desert and undeveloped land. At the time of the field site visits between December 20, 2019 and January 28, 2020 the following site conditions were observed:

- Rock outcrops were observed throughout the native portion of the site
- Natural washes with steep slopes were located throughout the native portion of the site
- Light to zero vegetation coverage throughout the cleared southwestern portion of the site
- Moderate native vegetation in the native portion consisting of grasses, bushes, trees and cacti.
- Previously constructed, temporary, drainage channel located in the northern portion of the cleared area
- Mountainside topography with general slope and drainage of the site trends toward the southwest
- Large soil and aggregate stockpile, created during the construction of previous phases within Aloravita development, approximately 10 to 30 feet high. Evidence of hard dig conditions was observed in the stockpile consisting of large chunks of cementation and weathered rock



Figure 1 - South side of the Large Stockpile

ProTeX Job No.: 9821





Figure 2 - Large Chunks of Cementation

# 2.2 Historical Aerial Investigation

The following descriptions and Historical Aerial Photographs were obtained from the Maricopa County (https://gis.maricopa.gov/GIO/HistoricalAerial/index.html) and show evidence of former site activities and conditions. Former land use is identified by historical aerial photographs and described based on engineering experience.

Former land use was identified on the property. Former land use consisted of dirt hiking trails and a staging area for stockpiles and end dump piles. Dirt trails, possibly for hiking, were constructed at various locations on the site between January and December of 1986. The number of trails increased at various times throughout the years up to February of 2006. The north-south trail on the western edge of the property was expanded between November and December of 2004. The southwest portion of the property was roughly graded and used as a staging area for stockpiles and end dump piles beginning between September and December of 2018.

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821

FOCE THE PT X PERTS L.L.C.

# 2.3 Field Investigation

The field investigation consisted of drilled test holes, backhoe test pits and a seismic refraction survey. The investigation was limited to the anticipated buildable area. The anticipated buildable area was approximated based on the 20% Slope Line Displayed on the Phase 3 &4 Land Use Plan produced by CVL Consultants (20 November 2019).

A total of fifty (50) test holes, were completed at the site for the purpose of evaluating subsurface conditions. Test holes were terminated at depths of 2 to 15 feet due to auger refusal on weathered rock, cementation and dense gravel and cobbles.

A total of twenty-one (21) test pits were completed for the purpose of evaluating subsurface conditions and evaluating future excavations. Test pits were terminated at depths between 1.5 and 10 feet due to backhoe refusal on weathered rock, cementation and dense gravel and cobbles.

A total of twenty (20) seismic refraction lines were completed at the site to further analyze the subsurface conditions and evaluate conditions with respect to future difficulty of excavations.

As a part of the investigation samples were obtained from the large stockpile to evaluate the use as structural fill in the proposed construction. Four (4) boring locations (B37, B38, B39 and B40) and three (3) test pits (TP19, TP20 and TP21) were advanced on the stockpile to evaluate subsurface conditions.

At each test location, the soils encountered were visually observed, classified, logged and representative samples were obtained where applicable. Refer to the site plan in Appendix B for approximate test hole locations.

## 2.4 Laboratory Testing

Subsequent to the field investigation, soil samples were submitted for laboratory testing. Tests were performed to determine the following:

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona ProTeX Job No.: 9821



- Sieve Analysis and Atterberg Limits- Used for formal classification of soils in general accordance with the Unified Soil Classification System (USCS) per ASTM Test Method D2487. Sieve analysis is performed in general accordance with ASTM Test Methods D421, D422 and D1140. The Atterberg Limits were determined in general accordance with ASTM Test Method D4318.
- Expansion Index- To determine the potential expansion of remolded soils based on the Expansion Index Test Method (ASTM D4829).

<b>Expansion Index- Expansive Potential Categorization</b>			
0-20	Very Low		
21-50	Low		
51-90	Medium		
91-130	High		
>130	Very High		

• Sulfates and Chlorides- To determine levels of water soluble sulfate (ARIZ 733) and chloride (ARIZ 736) content, which could negatively impact project steel/concrete.

# **Laboratory Test Summary**

Location	Depth	PI	%Passing	% <	USCS Soil	Expansion
	(ft)		#200	0.002mm	Class	Index
B1	0-3	NP	33		SM	
B2	0-3	4	34		SC-SM	
В3	0-3	14	41		GC	
B4	0-3	6	15		GC-GM	
B5	0-2	10	29		SC	
B6	0-3	10	23	6.5	SC	25
B7	0-3	NP	24		SM	
B9	0-3	NP	31		SM	
B9	5-7	NP	21		SM	
B9	12-14	NP	19		SM	
B10	0-3	NP	20		SM	1
B11	0-3	15	32		SC	0
B13	0-3	NP	18		SM	
B14	0-3	NP	41		SM	
B14	5-7	NP	29		SM	
B16	0-3	7	21		SC-SM	
B16	5-7	NP	16		SM	
B16	12-14	NP	22		SM	
B17	0-3	11	45		GC	
B17	5-7	NP	26		SM	
B17	12-14	NP	21		SM	
B18	0-3	4	43		SC-SM	
B19	0-3	NP	27		SM	
B21	0-3	NP	24		SM	

ProTeX Job No.: 9821



Location         Depth (ft)         PI (ft)         % Passing #200         % < USCS Soil Class	Expansion Index
B22         0-3         NP         23         SM           B23         0-3         5         22         SC-SM           B24         0-3         NP         22         SM           B26         0-3         9         33         SC           B30         0-2         NP         12         GM           B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	
B23         0-3         5         22         SC-SM           B24         0-3         NP         22         SM           B26         0-3         9         33         SC           B30         0-2         NP         12         GM           B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B24         0-3         NP         22         SM           B26         0-3         9         33         SC           B30         0-2         NP         12         GM           B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B26         0-3         9         33         SC           B30         0-2         NP         12         GM           B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B30         0-2         NP         12         GM           B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B31         0-3         NP         30         SM           B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B32         0-3         NP         17         SM           B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B33         0-3         NP         24         SM           B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	8
B34         0-3         NP         10         SP-SM           B35         0-3         NP         9         GW-GM	
B35 0-3 NP 9 GW-GM	
B37 0-3 8 25 SC	
B38 0-3 12 34 SC	
B39 0-3 7 14 GM	
B40 0-3 10 15 GC	
B40 5-7 13 32 SC	
B40 11-13 7 33 SC-SM	12
B41 0-3 9 23 GC	
B42 0-3 11 22 SC	
B43 0-3 10 34 GC	
B44 0-3 NP 16 GM	
B45 0-3 6 27 SC-SM	10
B46 0-3 20 30 GC	59
B47 0-3 11 40 SC	
B48 0-3 4 21 SC-SM	
B49 0-3 NP 17 GM	
B50 0-2 NP 6 SM	
B41 0-3 9 23 SC-SM	
B42 0-3 11 22 GC	
B43 0-3 10 34 GC-GM	
B44 0-3 NP 16 SC	
B45 0-3 6 27 SC	25
B46 0-3 20 30 SM	
B47 0-3 11 40 SM	
B48 0-3 4 21 SM	
B49 0-3 NP 17 SM	
B50 0-2 NP 6 SM	1
B41 0-3 9 23 SC	0
B42 0-3 11 22 SM	
B43 0-3 10 34 SM	
B44 0-3 NP 16 SM	
B45 0-3 6 27 SC-SM	
B46 0-3 20 30 SM	
B47 0-3 11 40 SM	
B48 0-3 4 21 GC	
B49 0-3 NP 17 SM	
B50 0-2 NP 6 GP-GM	

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821



Location	Depth (ft)	PI	%Passing #200	% < 0.002mm	USCS Soil Class	Expansion Index
TP3	0-2	21	51	20.1	CL	80
TP19	0-2	4	19		GM	13
TP20	0-3	7	23		SC-SM	14

See Appendix A for a detailed compilation of the laboratory test results.

# 3.0 GENERAL SITE CONDITIONS

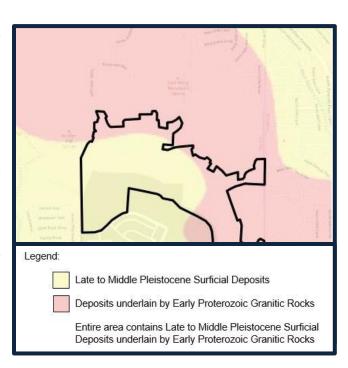
## 3.1 Soil Stratigraphy

Based on the field exploration and laboratory testing, the subsurface profile to the depths explored, consist primarily of silty sand, silty clayey sand, clayey sand, clayey gravel, silty gravel, silty clayey gravel and sandy clay of plasticity ranging from non-plastic to 21. Refer to the boring logs in Appendix C for a detailed description of the subsurface soil profile.

# 3.2 Site Geology

The geology of the site was provided from the following reference: Arizona Geological Survey Website (Interactive Geological Map of Arizona) and United States Geological Survey (Mineral Resources Online Spatial Data: Geologic Maps).

The southern portion of the site is located in an area of Late and Middle Pleistocene Surficial Deposits (10-750 ka) — unconsolidated to weakly consolidated alluvial fan, terrace, and basin-floor deposits with moderate to strong soil development. Fan and terrace deposits are primarily poorly sorted, moderately bedded gravel and sand, and basin floor deposits are primarily sand, silt and clay. The northern and eastern portions of the site are located in an area of Early Proterozoic Granitic Rocks (1600-1800 Ma) — which can contain a wide



Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821



variety of granitic rocks, including granite, granodiorite, tonalite, quartz diorite, diorite, and gabbro. These rocks commonly are characterized by steep, northeast-striking foliation.

## 3.3 Potential for Soil Hydro-Collapse (Settlement Potential)

Blow counts (N-values) were performed but no laboratory testing could be performed due to the existence of gravels and disturbance of samples due to vibration. The field blow counts indicate a low potential for hydro collapse at the anticipated foundation load of 1500psf (See the attached laboratory test results and boring logs).

# 3.4 Potential for Soil Expansion (Expansion Potential)

The expansion potential of the native surface soils, to the depths explored based on ASTM test method D4829, is considered very low to medium (Expansion indexes of 0, 1, 8, 10, 12, 13, 14, 25, 59 and 80). Soils selected for testing for expansion potential were those that represented clayey soils with varying plasticity index values to determine the range of expansive potential soils across the site. The Expansion Index values typically tend to be higher with higher plasticity indices as can be seen in the test data for the site. However, soils that have high plasticity indices but have a small percent passing the 200 sieve may have lower potential for expansion based on the soil composition. The soils that tested non-plastic are comprised of silts and sands and are considered to have a very low potential for expansion.

#### 3.5 Potential for Corrosion

Soils were tested for water soluble sulfates and chlorides The International Building Code specifies limits for soluble sulfate levels of 1000ppm. The soils tested yielded results below these levels and do not require any specialized design requirements. The test results are presented in Appendix A.

#### 3.6 Seismic Survey

The seismic refraction survey consists of introducing a sound pulse into the ground and recording the time of first arrival vibrations at different horizontal distances. The sound pulse is most often generated by manually striking a steel plate/ball with a sledge hammer but can also be generated by small explosions. For the purpose of this survey a sledge hammer was utilized. The sound is recorded on an engineering seismograph utilizing one or more sound vibration detection devices known as



geophones. The seismic refraction survey is interpreted to indicate a subsurface profile consisting of three consistent and distinct subsurface strata described below (See Appendix D for individual seismic line profiles):



Figure 3 - Typical Seismic Refraction Line

**Layer 1:** This uppermost surficial layer (layer 1) has an average velocity of 1750 feet per second (fps) in a range from 1000 to 2500 fps. The layer thickness and depth from existing site surface grade varies from about 1 to 15 feet and likely represents a sandy soil, clayey sandy soil and clayey soil with various amounts of gravel and cobbles. Layer 1 exists to an average depth of 3.5 feet below the existing site surface at the locations of the seismic survey.

**Layer 2:** An intermediate layer (Layer 2) that has an average velocity of 3750 fps within a range from 2500 to 5000 fps. This layer extends from the base of the surficial layer and was encountered at depths ranging from 1 to 15 feet below existing site surface grades. The intermediate layer thickness likely represents a zone of very highly to highly weathered rock and/or possible

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821



moderately cemented soils with gravels and cobbles. Layer 2 exists below an average depth of 3.5 feet below existing site surface at the locations of the seismic survey lines.

**Layer 3:** A bottom layer (Layer 3) that interfaces with the base of Layer 2 and has an average velocity of 6500 fps within a range of 5000 fps to 8000 fps. This layer extends from the base of the surficial layer and was encountered at depths ranging from 3 to 15 feet below existing site surface grades. Layer 3 likely represents highly to moderate weather rock and/or possible strongly cemented soils with gravels and cobbles. Layer 3 exists below an average depth of 11.5 feet below existing site surface at the locations of the seismic survey lines.

# 3.7 Excavation and Workability

Based on the field investigation (dilled test holes, backhoe test pits and seismic refraction survey) and local engineering experience, it is anticipated that conventional excavation equipment may be utilized only for Layer 1. See below for more

Layer 1, surficial layer, to depths ranging from 0 to 15 feet (with an average depth of 3 feet) below existing ground elevation.

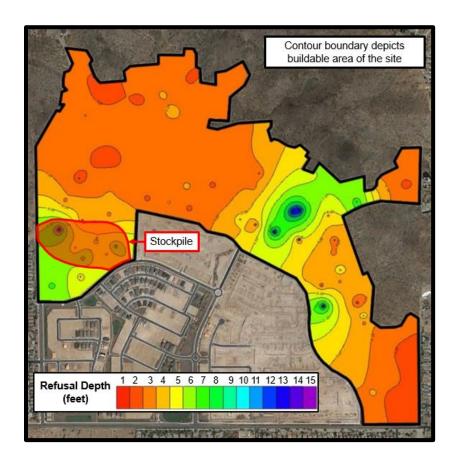
Layer 2 – may require additional equipment i.e. hoe-ram attachment and possible blasting techniques due to very highly to highly weathered rock formations or moderately cemented soils with gravel and cobbles. Layer 2 was encountered as shallow as 1 foot and at an average depth of approximately 3 foot below existing ground elevation.

Layer 3 – highly to moderate weather rock formations and/or possible strongly cemented soils with gravels and cobbles may require hoe-ram attachment and blasting techniques. Layer 3 was encountered as shallow as 2 foot below existing ground elevation.

The depths of the various weathered rock formation are highly variable at the site as indicated by seismic refraction survey profiles and observed areas of rock outcropping. See the figure below for the refusal depth contour map for anticipated depth to refusal based on the drilled test holes, backhoe test pits and seismic refraction survey. The contour map below represents the anticipated



depth to hard dig (alternative excavation) conditions within the boundaries of the anticipated buildable area.



However, this generalized assessment is not intended to be the sole basis for contractors preparing earthwork bids. Undiscovered shallow bedrock, cemented soils, cobbles, boulders, and weathered/broken bedrock may make excavation more difficult than expected. In addition, the relative ease/efficiency of excavation is heavily dependent on operator skill and the type of equipment assigned to the project. Thus, prospective earthwork contractors bidding on this project need to assess site excavation conditions for themselves. Trench shoring, benching, or laying back of excavations greater than 3 feet in depth may be required to satisfy government safety regulations for personnel safety.

ProTeX Job No.: 9821



#### 3.8 Earth Fissure Review

The site is located within an area of regional groundwater withdrawal. Arizona Geological Survey has been commissioned to study earth fissures associated with the groundwater withdrawal. The Earth Fissure Maps provided by the Arizona Geological Survey indicate no known earth fissures on site or within approximately 12.3 miles of the site.

#### 3.9 Seismic Characteristics

The subject site is located in an area of low seismic activity. Values have been developed based on knowledge of the local geological conditions, soils encountered during the site investigation of the subsurface soils, and the 2018 International Building Code (IBC). The 2018 IBC references the American Society of Civil Engineers (ASCE) 7-16 standard. Based on knowledge of the geology of the area a 100 feet boring was not advanced.

Site Class	D (Stiff Soil Profile)
Central Latitude	33.73446268°N
Central Longitude	112.20910737°W
S <sub>s</sub> Spectral Acceleration for Short Period	0.22g
S <sub>1</sub> Spectral Acceleration for a 1-Second period	0.073g
Fa Site Coefficient for Short Period	1.60
F <sub>v</sub> Site Coefficient for a 1-second Period	2.40
S <sub>1</sub> Spectral Acceleration for a 1-Second period F <sub>a</sub> Site Coefficient for Short Period	0.073g 1.60

#### 3.10 Liquefaction Potential

The soil encountered during the site investigation consisted of silty sand, silty clayey sand, clayey sand, clayey gravel, silty gravel, silty clayey gravel and sandy clay. Based on the soil types and the low ground motion hazard (relatively low ground acceleration), the potential for liquefaction of the site soils is considered to be negligible.

#### 3.11 Flood Plains

ProTeX reviewed the Federal Emergency Management Agency (FEMA) Flood Maps and determined the subject site is <u>not</u> within the 100 year flood zone. A partial copy of the FEMA Flood Map with site location is shown to the right. The map indicates the subject site is located in a Zone X, which is an area of 0.2% annual chance flood with average depths of less than 1 foot or



with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. The FEMA map reviewed is Map Number 04013C1255L and revision date of October 16, 2013.

#### 3.12 Groundwater

ProTeX reviewed the Arizona Department of Water Resources (ADWR), GIS Groundwater Data and referenced monitored wells within the vicinity of the subject site. Wells located within this radius indicated depths of water ranging from approximately 320 to 446 feet below ground surface. Wells were measured using different techniques such as ADWR calibrated electric sounder and steel tape.

## 3.13 Shrinkage/Swell

Field observation, test borings, backhoe test pits and seismic refraction survey of subsurface profiles indicates that during grading, soils will likely be compacted to densities greater than the current density of the native soils. In areas of weathered or intact rock formations (Layer 2 and Layer 3) that require additional hydraulic hoe-ram attachments or blasting techniques, may experience an increase in volume (swell). Both site specific testing and experience indicates that there is variability of the site soils subsurface and thus shrinkage/swell across the site will vary such that uniform shrinkage/swell across this site during earthwork operations is unlikely. The shrinkage values provided are based on standard construction techniques and may vary depending on the equipment used and the manner in which the grading is performed.

Surface Stratum	Estimated Shrinkage (%)
Layer 1 – Sandy Silt Soils	10-15
Subsurface Stratum	
Layers 2 and 3 – Cemented Soils and Rock Formations	Potential Expansion

#### 4.0 RECOMMENDATIONS

The recommendations contained herein are based on the findings of the field investigation, laboratory test results and local experience.

ProTeX Job No.: 9821



#### 4.1 Foundations

It is highly recommended that the design of foundations be done under the direction of a registered professional engineer with structural expertise. Post-tension slab-on-grade foundations may be utilized in the design of light to moderately loaded single family residential structures. Conventional foundations can be utilized for isolated patio footings, site walls or in conjunction with post-tensioned slabs. It is recommended that foundation excavations be inspected prior to placement of concrete to ensure they are free of debris and loose soils.

Laboratory testing indicates soil characteristic indicated expansion potential generally very low to low with pockets of soils with expansion potential is in a higher medium range. It is anticipated that during the site grading activities soil profiles will change with cuts and fills. It is this firm's recommendation that a post-grading soils report be performed for each parcel following site grading activities to determine final design profile with final foundation design parameters.

# 4.1.1 Conventional Foundation System for Patios and Site Walls

Shallow foundations systems should bear a minimum of 1.5 feet below lowest adjacent grade extending laterally within 5 lateral feet from the edge of foundation. Due to the properties of the native soils as indicated by laboratory testing, it is recommended that foundations bear on native undisturbed soils or controlled compacted fill. Controlled compacted fill may consist of on-site and/or imported material that is placed or areas that are scarified, moisture processed and recompacted. The following table provides allowable bearing capacities for the site.

Allowable Bearing Capacity for Shallow Depth Conventional Slab-On-Grade/Foundation Systems:

*Footing Depth (ft.)	Bearing Stratum	Allowable Soil Bearing Capacity
1.5	Firm Undisturbed Native soils or Controlled Compacted Fill	1500 psf

<sup>\*</sup>Depth to base of perimeter footings is measured from the lowest adjacent finished grade elevation within 5 feet of edge of footing. Depth to base of interior footings measured from top of floor slab when used in conjunction with post-tension slabs.

Foundation widths should meet building code minimums and should not be larger than 7 feet and 4 feet, for spread and continuous foundations, respectively.

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821

The recommended foundation bearing pressures should be considered allowable maximums for

dead plus design live loads and may be increased by one-third when considering total loads

including transient wind or seismic forces. The weight of the foundation concrete below grade

may be neglected in dead load computations.

Foundation excavations should be inspected to verify that they are free of loose soil that may have

blown or sloughed into the excavations and ensure that the footings will bear upon firm native

undisturbed soils or engineered fill.

The stem walls should be well reinforced to distribute stresses caused by possible non-uniform

bearing capacity and/or minor differential foundation movements. It is recommended that stem

walls and footings be reinforced. The structural engineer should design the footings and stems for

the site soil conditions.

Preparation of the site to raise or lower the building pad should be done in accordance to the

Section 5 - Site Preparation

**4.1.2** Post-tension Slab-on-Grade Foundation System

For the purpose of the post-tension slab design an allowable bearing capacity of 1250psf is

assigned. The post-tensioned foundation system should bear on a minimum of 1.0 feet of

controlled compacted fill.

The following design parameters are assigned for use in the structural design of the foundation

systems.

Soil Subgrade Modulus (Ks)(for compacted fill):150pci

*Edge Moisture Variation (Em):* 

Edge Lift Condition:

4.9 feet

Center Lift Condition:

9.0 *feet* 

15

ProTeX Job No.: 9821



*Maximum Differential Soil Movement (Ym):* 

Edge Lift Condition: 0.8 inches
Center Lift Condition 0.4 inches

#### 4.2 Exterior Slab-on-Grade

Exterior slabs on grade should bear directly on grade and contain a minimum of 5.0 sacks of Portland cement per cubic yard with a minimum thickness of 4 inches. A minimum of 6 inches of subgrade should be scarified moisture processed and compacted to the specifications in the earthwork section of this report.

# 4.3 Lateral Loadings

The design of retaining walls for the site should be designed to retain the lateral loads applied by the site soils. The following values are provided in Equivalent Fluid Pressures for unrestrained, restrained and passive resistance.

Lateral Equivalent Fluid Pressures for Backfill:

\*Unrestrained Walls

\*Restrained Walls
Passive Resistance

Coefficient of Base Friction:

35 pcf
50 pcf
373 pcf
0.50

Design of below grade structures should account for or prevent potential hydrostatic buildup. In addition, any below grade structure penetrations to facilitate drainage may allow piping of soil and water if not addressed properly in the design of the structure.

<sup>\*</sup>The backfill pressures stated do not include temporary forces imposed during compaction of the backfill, swelling pressures developed by over-compacted clayey backfill soils, hydrostatic pressures from inundation of backfills, and/or surcharge loads. Walls should be suitably braced during backfilling to prevent damage and deflection.

ProTeX Job No.: 9821



## 4.4 Drainage

Establishment and long term maintenance of proper lot post-construction surface drainage is

*critical*. Because of the potential for an adverse effect on structures, it is highly recommended that moisture infiltration and fluctuation of bearing soils for structural foundation/floor be minimized. Roof runoff should be collected and discharged away from the house structures. Drainage of surface water away from the



structures should be provided during construction and maintained by the homeowner throughout the life of the structure. In no case, should long-term ponding be allowed near house structures. IRC Section R401.3 specifically requires "The grade away from the foundation walls shall fall a minimum of 6 inches within the first 10 feet. Where lot lines, walls, slopes or other physical barriers prohibit 6 inches of fall within 10 feet, drains or swales shall be provided to ensure drainage away from the house structure". Thus, un-drained landscape "islands" bounded by concrete flatwork and/or foundation wall/slab elements are to be avoided. Installation of rain gutters along the perimeter of the residential structure with drain systems to transport water away from the foundation and to the outfall of the lot is an option to minimize moisture infiltration and fluctuation of bearing soils for structural foundation/floor systems.

In yard areas, it is suggested that, where possible, finished slopes extend a minimum of 10 feet horizontally from building walls and have a minimum vertical fall of 6 inches. Backfill against footings, exterior walls and in utility trenches should be compacted to minimize the possibility of moisture infiltration through loose soil.

Drainage and moisture infiltration should be considered during landscaping design and placement to ensure foundation and slab bearing soils are not exposed to moisture infiltration or moisture content fluctuation. Distance from house structures to vegetative plants, planters, irrigation lines or landscape borders should not be less than 3 feet. Trees should be placed at a distance of 8 feet

ProTeX Job No.: 9821



or more. Landscape irrigation schedules should be adjusted for climatic changes to minimize moisture content fluctuation of foundation bearing soils.

## 4.5 Slope Stability

Stability of cut and fill slopes are dependent on soil properties such as density, cohesion, moisture content, etc. Site specific laboratory testing and experience indicates that these properties can vary significantly across the site. Temporary slopes for installation of underground utilities or structures should follow OSHA guidelines. A minimum slope of 2.5:1 horizontal to vertical may be utilized for design of cut slopes and compacted fill slopes. The slope recommendation does not consider safety for fall dangers.

# 4.6 Preliminary Pavement Section Recommendations

The pavement recommendations have been prepared in accordance with City of Peoria requirements. The design for local/residential streets is based on surface soil properties and City of Peoria Technical Design Requirements Figure 3-4.

**Recommendations for pavement sections utilizing Asphaltic Concrete (AC) Pavement:** 

Street Classification	AC	ABC
	(inches)	(inches)
Local Streets/Residential Streets	3.0	6.0

It should be noted that the design for Pavement Sections only account for subgrade soil properties with respect to traffic loads/volumes and does not take in to account the potential for heave from expansive soils found on-site. Following the movement of site soils during rough grading and earthwork construction, additional samples shall be taken within the limits of the proposed roadway to confirm subgrade classification according to M.A.G. Table 340 and determine final pavement section design. If soils are classified as expansive then corrective measures shall be recommended by the geotechnical engineer. Corrective measures may include additional sub-base (select material), removal/replacement of subgrade soils or treatment/stabilization of subgrade soils are not required.

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821



Care should be taken with regard to parkway grading, placement of landscape vegetation and irrigation systems to minimize moisture infiltration in subgrade soils below pavement sections. In addition, the use of monolithic curb/sidewalk combination placement and soil cement of subgrade soils may be considered for long-term performance.

Pavement materials and placement should conform to Maricopa Association of Governments (M.A.G.) specifications. In no case should pavement surfacing be placed on unstable wet subgrade and/or aggregate base course.

# **5.0 SITE PREPARATION**

The following recommendations are presented for site grading. It is recommended that a ProTeX geotechnical engineer's representative observe and test the earthwork and foundation portions of this project to ensure compliance with this Soil Investigation report.

Prior to placement of fill a representative of ProTeX should observe the clearing process. Clearing will include removal of (including but not necessarily limited to):

- Large stockpile/undocumented fill
- Previously constructed, temporary, drainage channel
- Site vegetation

The areas cleared should be inspected prior to and during scarification for evidence of organic material or loose areas that may require additional removal or processing.

It is recommended when final grading plan is developed, the plan be reviewed with a representative of ProTeX to determine finalize grading recommendations. The following recommendations are provided with anticipation of small cuts and fills.

The surface soils should be over-excavated a minimum depth of 1.0 foot below existing grade or 1.0 feet below final pad elevation, whichever is deeper. It is recommended that the over-excavation extend across the entire building pad and to a minimum lateral distance of five feet

Aloravita – Phases 3 and 4 67th Avenue and Jomax Road

Peoria, Arizona

ProTeX Job No.: 9821



beyond foundation edges. If rock or cemented stratums are encountered during the site mass grading this office should be contacted to evaluate the potential for over-excavation requirements to be reduced.

After clearing and over-excavation, the exposed soils should be scarified a minimum of 8 inches, moisture conditioned and compacted. The surface should be free from ruts, or other uneven features that would tend to prevent uniform compaction by the equipment used.

Sloping areas steeper than 5:1 (horizontal: vertical) should be benched to reduce the potential for slippage between slopes and fills. Benches should be level and wide enough to accommodate compaction and earth moving equipment.

Fill material should be free of organics, vegetative matter, deleterious or foreign material, rocks, and lumps having a diameter of more than 6 inches. Native soils may be used as fill material provided they are compacted as specified. If imported fill material is required, it should be approved very low expansive potential soils.

Based on the soil samples taken, the large stockpile located in the south western portion of the site may be used as fill material provided, they are compacted as specified. However, stockpiled material may require screening or crushing in order to meet the maximum diameter requirement of 6 inches. However, prior to grading operations, an evaluation of mass grading plans and potential use of larger size particles may be an option.

Fill material should be placed in layers, that when compacted, do not exceed 6 inches. Each layer should then be placed evenly and thoroughly mix during spreading to ensure uniformity of moisture throughout each layer. Each fill layer should be compacted to specified density and moisture content. Compaction equipment should be able to compact the fill to the specified density. Compaction of each layer should be continuous over its entire area and the compaction equipment should make sufficient passes to ensure that density has been obtained.

ProTeX Job No.: 9821



Soil compaction is recommended to the following densities and moisture contents as determined in accordance with ASTM D-698, AASHTO T-99 or applicable equivalent:

<b>Compaction Specifications for Post-Tension and Conventional Foundations</b>					
Material	Compaction	Percent Moisture			
Below Conventional Foundation Level and Post-Tension Slab-on-Grade	95% Min	Optimum to +4			
Fills at Depths 5 to 10 Feet Below Finish Grade	98% Min	-2 to +2 of Optimum			
Fills at Depths 10 Feet or Greater Below Finish Grade	100% Min	-2 to +2 of Optimum			

A ProTeX geotechnical engineer's representative should observe the grading operations to verify that all cut and fill areas are in accordance with the specifications. This office should be notified prior to earthwork operations so that appropriate observation and materials testing can be provided.

When work is interrupted by heavy rains, fill operations should not be resumed until the geotechnical engineer's representative indicates that the moisture content and density of the previously placed fill are as specified.

If building pads are altered or portions excavated as a part of construction activities, fill soils should be compacted as specified. If pads are not built on for an extended period of time, reconditioning of build pads may be required. Should this be the case, a representative of ProTeX should evaluate the pads for further recommendations.

## 6.0 CLOSURE

#### **6.1** Limitations

The recommendations contained in this report are based on the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the test holes. Should unusual material or conditions be encountered during construction, the ProTeX geotechnical engineer should be

ProTeX Job No.: 9821



notified to make supplemental recommendations should this be required. This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned.

The scope of services for this project does not include any environmental assessment of the site or identification of contaminated or hazardous materials or conditions.

The findings of this report are considered valid as of the present date. However, changes in the conditions of the site can occur with the passage of time, whether due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

#### **6.2** Recommended Additional Services

The recommendations provided in this report are based on the assumption that a testing plan will be implemented with an adequate schedule of testing to ensure that the construction process meets the recommendations/specifications presented in this report. The testing and observation should be performed under the direction of the ProTeX Geotechnical Engineer/representative and should include, but not necessarily be limited to the following:

- 1. Observe and document that the existing surface and subsurface structures, vegetation and abandoned utilities are removed from the site as required in the earthwork section.
- 2. Approve and document that fill material used as engineered fill in building and pavement areas meets the specifications.
- 3. After clearing the site; monitor the over excavation, scarification and removal of any soft/loose conditions down to firm native soils.
- 4. Monitor and test placement of fill soils in building and pavement locations to verify and document conformance with project specifications.

# Appendix A



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199246 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B1 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318				
Plasticity Index				
Liquid Limit	NV			
Plastic Limit	NP			
Dlastiaits Inday	NID			
Plasticity Index NP				

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Swell	NV
tes:	

pH and Resis	tivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	15	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	95			
#4	85			
#10	68			
#40	50			
#100	41			
#200	32			

Remarks: Reviewe

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199247 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B2 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318			
Plasticit	ty Index		
Liquid Limit	25		
Plastic Limit	21		
Plasticity Index	4		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

Swell	NV
otes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand with gravel Symbol: SC-SM

<b>Moisture Density (Proctor)</b>	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	16

\* = out of specification

	ASTM D114	) / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	84		
#10	68		
#40	51		
#100	41		
#200	34		

Remarks:

Reviewed By:



1102 W. Southern Ave., Ste. 4 Office: (602)-272-7891 Tempe, AZ 85282 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199248 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B3 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticity Index	
Liquid Limit	37
Plastic Limit	23
Plasticity Index	14

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey gravel with sand
Symbol: GC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	29

\* = out of specification

Remarks:

	ASTM D114	) / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	81		
#4	71		
#10	61		
#40	51		
#100	45		
#200	41		

Reviewed By:



Tempe, AZ 85282

# **Soils Summary**

Client: Shea Homes Limited Partnership ProTeX Job No: 9821 Aloravita 199249 - Phoenix Project Name: ProTeX Lab No: Job Name: Phases 3 and 4 Date Received: 12/24/2019 Geo (Native) Amos McCurdy Material: Sampled By: Material Supplier: Date Sampled: 12/23/2019 Sample Location: B4 (0-3') Submitted By: Amos McCurdy

Office: (602)-272-7891

Fax: (602) 272-7892

ASTM	D4318
Plasticit	ty Index
Liquid Limit	28
Plastic Limit	22
Dlacticity Indox	(
Plasticity Index	0

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey gravel with sand
Symbol: GC-GM

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	66	

\* = out of specification

Remarks:

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	67		
1/2"	54		
#4	34		
#10	27		
#40	21		
#100	17	•	
#200	15		

Reviewed By:

y: Invide Melengy



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199250 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B5 (0-2')	Submitted By:	Amos McCurdy

ASTM	D4318	
Plasticity Index		
Liquid Limit	28	
Plastic Limit	18	
Plasticity Index	10	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

% Swell	NV
Notes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey sand with gravel Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	24	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	91		
#4	76		
#10	58		
#40	41		
#100	34		
#200	28		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199251 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B6 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	26
Plastic Limit	16
D1 (' ') I 1	10
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans:	ion Inde
0 - 20	Very Low		•
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	25
91 - 130	High		
> 130	Very High		<u> </u>

6 Swell	NV
Jotes:	

pH and Resistivity	
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey sand with gravel Symbol: SC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	25

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	92		
#4	75		
#10	54		
#40	37		
#100	29		
#200	23		

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199252 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B7 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	NV
Plastic Limit	NP
Dlastiaits Inday	NID
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

% Swell	NV
lotes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)			
Max. Dry Density	NV		
Opt. Moisture %	NV		
Corr. Max. Dry Density	NV		
Corr. Opt. Moisture %	NV		
% Rock	25		

\* =out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	83			
#4	75			
#10	62			
#40	43			
#100	32			
#200	24			

Remarks:

Reviewed By:



e. 4 Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199253 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B9 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Percent Sv	well of Soil		
% Swell	NV	1	
Notes:			pH Read
			Resistivi
			Class: Silty
		Sy:	mbol: SM

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	10

<sup>\* =</sup> out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	90		
#10	75		
#40	51		
#100	40		
#200	31		

Reviewed By:

Jayde Moloney

Remarks:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199254 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B9 (5-7')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 - 51	Low	
52 - 90	Medium	
91 - 130	High	
> 130	Very High	

Expans	ion Index	
EI =	NA	

Percent Sv	well of Soil	
% Swell	NV	
Notes:		pH Read
		Resistivi
		Class: Silty
		mbol: SM

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

	<b>Moisture Density</b>	(Proctor)
	Max. Dry Density	NV
	Opt. Moisture %	NV
	Corr. Max. Dry Density	NV
	Corr. Opt. Moisture %	NV
•	% Rock	4

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	96			
#10	80			
#40	44			
#100	28			
#200	21			

Remarks:

Reviewed By:



1102 W. Southern Ave., Ste. 4 Office: (602)-272-7891 Tempe, AZ 85282 Fax: (602) 272-7892

# **Soils Summary**

ASTM	D4318		
Plasticity Index			
Liquid Limit	NV		
Plastic Limit	NP		
Dlastiaits Inday	NID		
Plasticity Index	NP		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Swell	NV
otes:	
otes.	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand
Symbol: SM

<b>Moisture Density (Proctor)</b>			
Max. Dry Density	NV		
Opt. Moisture %	NV		
Corr. Max. Dry Density	NV		
Corr. Opt. Moisture %	NV		
% Rock	4		

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	96			
#10	78			
#40	42			
#100	26	•		
#200	19	•		

Remarks:

Reviewed By:

7: Canada Malanasa



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199256 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B10 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318	
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Dlastiaits Inday	NID	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion	Expans	ion Inde
0 - 20	Very Low		
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	1
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	

pH and Resist	ivity
	<b>3</b> 7.
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density NV
Opt. Moisture % NV
Corr. Max. Dry Density NV
Corr. Opt. Moisture % NV
% Rock 18

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	96		
#4	82		
#10	63		
#40	42		
#100	29		
#200	20		

Reviewed By:

Jayde Moloney

Remarks:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199257 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B11 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318	
Plasticity Index		
Liquid Limit	32	
Plastic Limit	17	
Plasticity Index	15	
1 lasticity flidex	13	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Swell	NV
otes:	

pH and Resist	ivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey sand Symbol: SC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	14

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	86		
#10	66		
#40	47		
#100	38		
#200	32		

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199258 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B13 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Dlastiaits Inday	NID
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

% Swell	NV
Notes:	

pH and Resisti	vity
pH Reading:	NA
Resistivity (ohms-cm)	NA

<b>Moisture Density (Proctor)</b>	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	5

\* = out of specification

	ASTM D114	0 / <b>D422</b>	
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	95		
#10	65		
#40	35		
#100	23		
#200	18		

Remarks:

Symbol: SM

Reviewed By:



1102 W. Southern Ave., Ste. 4 Office: (602)-272-7891 Tempe, AZ 85282 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199259 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B14 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Dlastiaits Inday	NID
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	13	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	87		
#10	79		
#40	64		
#100	50		
#200	41		

Remarks: Reviewe

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199260 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B14 (5-7')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
D1	
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

otes:	
Jus.	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	19	

· — out of specification	* = out	of	specification
--------------------------	---------	----	---------------

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	91			
#4	81			
#10	72			
#40	60			
#100	44			
#200	29			

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199261 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B16 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318			
Plasticity Index			
Liquid Limit	26		
Plastic Limit	19		
Plasticity Index	7		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

% Swell	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand with gravel Symbol: SC-SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	16	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	93			
#4	84			
#10	60			
#40	35			
#100	27			
#200	21			

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199262 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B16 (5-7')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand Symbol: SM

<b>Moisture Density</b>	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	8

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	92		
#10	68		
#40	31		
#100	20	•	
#200	16		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199263 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B16 (12-14')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

% Swell	NV
Notes:	

pH and Resis	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand Symbol: SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	6	

\* = out of specification

	ASTM D114	) / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	94		
#10	73		
#40	40		
#100	28		
#200	22		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199264 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B17 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	29	
Plastic Limit	18	
Plasticity Index	11	

Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 - 51	Low	
52 - 90	Medium	
91 - 130	High	
> 130	Very High	

Expansion Index		
EI =	NA	

6 Swell	NV
lotes:	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Clayey gravel with sand Symbol: GC

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	30	

\* =out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	85		
#4	70		
#10	62		
#40	57		
#100	52		
#200	45		

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199265 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B17 (5-7')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

6 Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel

Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	25

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	75		
#10	61		
#40	44		
#100	33		
#200	26		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199266 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B17 (12-14')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

Swell	NV
otes:	
3 <b>10</b> 5.	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel
Symbol: SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	18	

\* =out of specification

Remarks:

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	82		
#10	71		
#40	51		
#100	30	•	
#200	21	•	

Reviewed By:

Toyda Malanay



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199267 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B18 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	21	
Plastic Limit	17	
Plasticity Index	4	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

% Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand Symbol: SC-SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	4	

\* = out of specification

Remarks:

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	96		
#10	84		
#40	71		
#100	58		
#200	43		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199268 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B19 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Dlacticity Indox	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

% Swell	NV
Votes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel

Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	20

\* = out of specification

	ASTM D114	) / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	80		
#10	62		
#40	43		
#100	34		
#200	27	_	

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

6 Swell	NV
otes:	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	24	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	89			
#4	76			
#10	58			
#40	38			
#100	30			
#200	24			

Remarks: Reviewe

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199238 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B22 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Swell	NV
otes:	•

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel Symbol: SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	33	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	85		
#4	67		
#10	55		
#40	40		
#100	31		
#200	23		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199239 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B23 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plasticit	ty Index
Liquid Limit	24
Plastic Limit	19
Plasticity Index	5

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

% Swell	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand with gravel Symbol: SC-SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	38

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	89		
#4	62		
#10	46		
#40	33		
#100	28		
#200	22		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199240 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B24 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

Swell	NV
otes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Silty sand with gravel Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	32

\* = out of specification

Remarks:

	ASTM D114	0 / <b>D</b> 422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	88		
#4	68		
#10	54		
#40	39		
#100	30		
#200	22		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199241 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B26 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	31	
Plastic Limit	22	
Plasticity Index	O	
1 lasticity flucx	,	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Swell	NV
otes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey sand with gravel Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	21	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	79		
#10	64		
#40	46		
#100	39		
#200	33		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199243 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B30 (0-2')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

% Swell	NV
Notes:	

pH and Resis	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel Symbol: GM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	78

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	49		
1/2"	32		
#4	22		
#10	19		
#40	17		
#100	15		
#200	12		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199244 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/24/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/23/2019
Sample Location:	B31 (0-3')	Submitted By:	Amos McCurdy

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
D1	
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

6 Swell	NV
otes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	17	

· — out of specification	* = out	of	specification
--------------------------	---------	----	---------------

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	91			
#4	83			
#10	70			
#40	52			
#100	40			
#200	30			

Remarks:

Reviewed By:



1102 W. Southern Ave., Ste. 4 Office: (602)-272-7891 Tempe, AZ 85282 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199388 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B32 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318	
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Dlastiaits Inday	NID	
Plasticity Index	NP	

xpansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	8

6 Swell	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel
Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	39

\* = out of specification

Remarks:

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	83			
1/2"	71			
#4	61			
#10	51			
#40	33			
#100	22			
#200	17			

Reviewed By:

r.



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199389 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B33 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

% Swell	NV
otes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel
Symbol: SM

Moisture Density (Proctor)

Max. Dry Density NV
Opt. Moisture % NV
Corr. Max. Dry Density NV
Corr. Opt. Moisture % NV
% Rock 19

\* = out of specification

Remarks:

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	91		
#4	81		
#10	72		
#40	56		
#100	37		
#200	24		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199390 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B34 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

Swell	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Poorly-graded sand with silt and gravel Symbol: SP-SM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	18	

\* = out of specification

Remarks:

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	94		
1/2"	94		
#4	82		
#10	56		
#40	25		
#100	15		
#200	10		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199391 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B35 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Dlastiaits Inday	NID	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Swell	NV
otes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Well-graded gravel with silt and sand Symbol: GW-GM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	50	

\* = out of specification

Remarks:

	ASTM D114	) / D422	
Sieve	% Pass	Specs	*
1"	76		
1/2"	65		
#4	50		
#10	33		
#40	19		
#100	13		
#200	9.0		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199392 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B35 (5-7')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

% Swell	NV
Notes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel with sand
Symbol: GM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	50

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	90		
1/2"	69		
#4	50		
#10	34		
#40	23		
#100	18		
#200	12		

Reviewed By:

y:

Jayde Moloney

Remarks:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199393 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B37 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plasticit	ty Index
Liquid Limit	28
Plastic Limit	20
Dlacticity Indov	e e
Plasticity Index	<b>o</b>

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

6 Swell	NV
lotes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey sand with gravel
Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	37	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	81		
1/2"	79		
#4	63		
#10	51		
#40	40		
#100	33		
#200	25		

Remarks: Reviewe

Reviewed By:



1102 W. Southern Ave., Ste. 4 Office: (602)-272-7891 Tempe, AZ 85282 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199394 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B38 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318		
Plasticity Index		
Liquid Limit	33	
Plastic Limit	21	
D1 (11) 1 1	12	
Plasticity Index	12	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

% Swell	NV
lotes:	

pH and Resistivity			
***	77.		
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey sand with gravel
Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	18	

\* = out of specification

Remarks:

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	82		
#10	65		
#40	49		
#100	41		
#200	34		

Reviewed By:

Torvida Malamari



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199395 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B39 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	33
Plastic Limit	26
Plasticity Index	7

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

otes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel with sand Symbol: GM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	55

\* = out of specification

Remarks:

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	76		
1/2"	65		
#4	45		
#10	34		
#40	24		
#100	18		
#200	14		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199396 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B40 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plasticit	ty Index
Liquid Limit	31
Plastic Limit	21
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

Swell	NV
otes:	
iotes.	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey gravel with sand Symbol: GC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	56	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	56			
1/2"	54			
#4	44			
#10	35			
#40	26			
#100	20			
#200	15			

Reviewed By:

Jayde Moloney

Remarks:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199397 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B40 (5-7')	Submitted By:	Delbert A Rapier

ASTM D4318			
Plasticity Index			
Liquid Limit	33		
Plastic Limit	20		
Plasticity Index	13		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

% Swell	NV
Notes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey sand with gravel Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	20	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	80		
#10	64		
#40	48		
#100	40		
#200	32		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199398 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B40 (11-13')	Submitted By:	Delbert A Rapier

ASTM D4318			
Plasticity Index			
Liquid Limit	26		
Plastic Limit	19		
Plasticity Index	7		

Expansion Index, (EI)	Potential Expansion	Expansi	on Inde
0 - 20	Very Low		
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	12
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	1112	

Class: Silty, clayey sand with gravel

Symbol: SC-SM

**Moisture Density (Proctor)** Max. Dry Density NVOpt. Moisture % NVNVCorr. Max. Dry Density Corr. Opt. Moisture % NV% Rock **20** 

\* = out of specification

Remarks:

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	94	1		
1/2"	90			
#4	80			
#10	66			
#40	50			
#100	41			
#200	33	_		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199399 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B41 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318			
Plasticity Index			
Liquid Limit	29		
Plastic Limit	20		
Plasticity Index	9		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey gravel with sand

Symbol: GC

**Moisture Density (Proctor)** Max. Dry Density NVNVOpt. Moisture % NVCorr. Max. Dry Density NV Corr. Opt. Moisture % % Rock 40

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	79			
1/2"	75			
#4	60			
#10	48			
#40	36			
#100	29			
#200	23			

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

# **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199400 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B42 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plasticit	ty Index
Liquid Limit	34
Plastic Limit	23
Plasticity Index	11
Flasherty fildex	11

Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 - 51	Low	
52 - 90	Medium	
91 - 130	High	
> 130	Very High	

Expansion Index		
EI =	NA	

6 Swell	NV
lotes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey sand with gravel Symbol: SC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	38

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	83		
#4	62		
#10	47		
#40	35		
#100	27		
#200	22		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199401 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B43 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	30
Plastic Limit	20
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

n Index
NA
)

% Swell	NV
lotes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey gravel with sand Symbol: GC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	32

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	94		
1/2"	83		
#4	68		
#10	57		
#40	46		
#100	39		
#200	33		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199402 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B44 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index	
EI =	NA	

6 Swell	NV
lotes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel with sand
Symbol: GM

Moisture Density (Proctor)				
Max. Dry Density	NV			
Opt. Moisture %	NV			
Corr. Max. Dry Density	NV			
Corr. Opt. Moisture %	NV			
% Rock	53			

\* = out of specification

Remarks:

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	95			
1/2"	76			
#4	47			
#10	36			
#40	26			
#100	21			
#200	16			

Reviewed By:

r. <u>Sanjeto Friberio</u>g



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199403 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B45 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318				
Plasticity Index				
Liquid Limit	26			
Plastic Limit	20			
Plasticity Index	6			

ASTM D4829		
Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 - 51	Low	
52 - 90	Medium	
91 - 130	High	
> 130	Very High	

Expans	ion Index
EI =	10

% Swell	NV
lotes:	

pH and Resistivity			
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Silty, clayey sand with gravel

Symbol: SC-SM

Moisture Density (Proctor)			
Max. Dry Density	NV		
Opt. Moisture %	NV		
Corr. Max. Dry Density	NV		
Corr. Opt. Moisture %	NV		
% Rock	27		

* =	out	of	spe	cifica	ation
	Out	$\circ$	SPC	CILIC	actori

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	73		
#10	53		
#40	40		
#100	34		
#200	27		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199404 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B46 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318	
Plasticity Index	
Liquid Limit	37
Plastic Limit	17
Plasticity Index	20

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	59

Swell	NV
otes:	

pH and Resis	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Clayey gravel Symbol: GC

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	56

\* =out of specification

	ASTM D114	10 / D422	
Sieve	% Pass	Specs	*
1"	63		
1/2"	52		
#4	44		
#10	41		
#40	37		
#100	34		
#200	30		

Remarks:

Reviewed By:

Jerald W Grossarth



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199405 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B47 (0-3')	Submitted By:	Delbert A Rapier

ASTM D4318	
Plasticit	ty Index
Liquid Limit	29
Plastic Limit	18
Plasticity Index	11

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Notes:	

pH and Resistivity			
***	77.		
pH Reading:	NA		
Resistivity (ohms-cm)	NA		

Class: Clayey sand with gravel Symbol: SC

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	19

\* = out of specification

Remarks:

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	92			
#4	81			
#10	67			
#40	50			
#100	43			
#200	40			

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199406 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B48 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318	
Plasticity Index		
Liquid Limit	22	
Plastic Limit	18	
Plasticity Index	4	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

% Swell	NV
Notes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand with gravel Symbol: SC-SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	36	

\* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	88		
1/2"	73		
#4	64		
#10	50		
#40	36		
#100	28	•	
#200	21		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199407 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B49 (0-3')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

Swell	NV
otes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel with sand
Symbol: GM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	43

\* = out of specification

Remarks:

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	93		
1/2"	70		
#4	57		
#10	44		
#40	31		
#100	23		
#200	17		

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	199408 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	12/31/2019
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	12/30/2019
Sample Location:	B50 (0-2')	Submitted By:	Delbert A Rapier

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

on Index
NA

Swell	NV
otes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Poorly-graded gravel with silt Symbol: GP-GM

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	82	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	55			
1/2"	31			
#4	18			
#10	15			
#40	12			
#100	9			
#200	6.1			

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892 Tempe, AZ 85282

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	200282 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	1/14/2020
Material:	Geo (Backhoe) (Native)	Sampled By:	Thomas M Perkins
Material Supplier:	-	Date Sampled:	1/10/2020
Sample Location:	TP3 (0-2')	Submitted By:	Thomas M Perkins

ASTM	D4318		
Plasticity Index			
Liquid Limit	48		
Plastic Limit	27		
Plasticity Index	21		

Expansion Index, (EI)	Potential Expansion	Expans	on Inde
0 - 20	Very Low		
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	80
91 - 130	High		
> 130	Very High		

Percent :	Swell of Soil
% Swell Notes:	NV

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Sandy lean clay Symbol: CL

<b>Moisture Density (Proctor)</b>		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	5	

\* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	98			
#4	95			
#10	90			
#40	78			
#100	65	•		
#200	51			

Remarks:

Reviewed By:

Jerald W Grossarth



Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	200283 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	1/14/2020
Material:	Geo (Backhoe) (Native)	Sampled By:	Thomas M Perkins
Material Supplier:	-	Date Sampled:	1/10/2020
Sample Location:	TP19 (0-2')	Submitted By:	Thomas M Perkins

ASTM	D4318
Plasticit	ty Index
Liquid Limit	26
Plastic Limit	22
Plasticity Index	4

Expansion Index, (EI)	Potential Expansion	Expansi	on Inde
0 - 20	Very Low		
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	13
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty gravel with sand Symbol: GM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	46

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	65		
1/2"	62		
#4	54		
#10	45		
#40	35		
#100	27		
#200	19		

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

### **Soils Summary**

Client:	Shea Homes Limited Partnership	ProTeX Job No:	9821
Project Name:	Aloravita	ProTeX Lab No:	200284 - Phoenix
Job Name:	Phases 3 and 4	Date Received:	1/14/2020
Material:	Geo (Backhoe) (Native)	Sampled By:	Thomas M Perkins
Material Supplier:	-	Date Sampled:	1/10/2020
Sample Location:	TP20 (0-3')	Submitted By:	Thomas M Perkins

ASTM	D4318
Plastici	ty Index
Liquid Limit	27
Plastic Limit	20
Plasticity Index	7

Expansion Index, (EI)	Potential Expansior
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansi	on Index
EI =	14

6 Swell	NIX
o Swell	NV
lotes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand with gravel Symbol: SC-SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	36

\* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	86		
1/2"	70		
#4	64		
#10	53		
#40	40		
#100	31		
#200	23		

Remarks:

Reviewed By:

Jerald W Grossarth

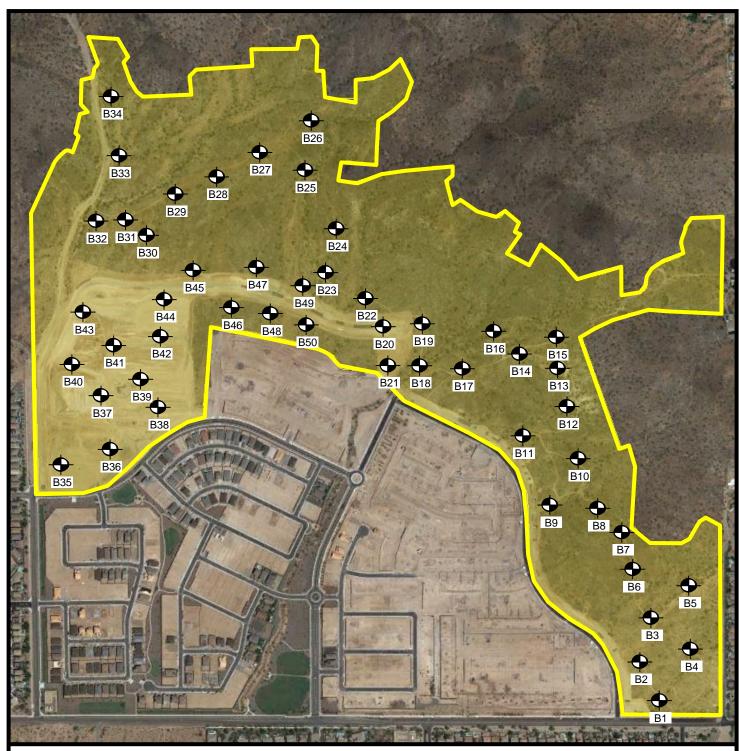


# Summary of Laboratory Test Results Potential for Corrosion

Client: Shea Homes Limited Part Builder: Shea Homes Limited Part Project Name: Aloravita Job Name: Phases 3 and 4 Job ID # 9821

Oxidation- Reduction Potential of Water (mV)											
Ħq	5				3						2
Minimum Resistivity (ohms-cm)											
Soluble Salts (ppm)											
Chloride (CL) (ppm)	102	61		15	10	13	267		23	101	22
Sulfate (SO4) (ppm)	19	15	17	46	81	9	66	ΪÞ	<b>7</b> 1	21	32
Sample Date	12/23/2019	12/23/2019	12/23/2019	12/23/2019	12/23/2019	12/23/2019	12/30/2019	12/30/2019	12/30/2019	1/10/2020	1/10/2020
Material Type	Geo	Ģ	Geo	Geo (Backhoe)	Geo (Backhoe)						
Depth	0-3	0.3'	0-3	.6-3	0-3	.6-9.	0-3	0-3	0-3	0-2	£-0
Location	B22	B31	BI	B9	B16	B18	B21	ZEA	B47	1P19	TP20
ProTeX Lab#	199238	199244	199246	199253	192661	195561	199387	888661	199405	200283	200284

# Appendix B



Legend:



Approximate Boring Location

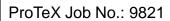


# Site Plan

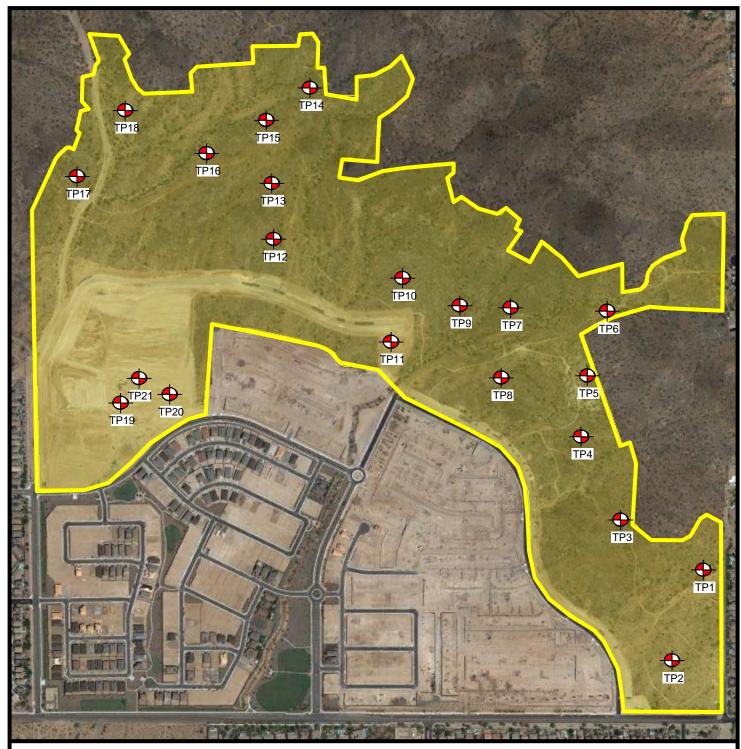
 Scale: N.T.S.
 Drawn by: MSK
 Date:01/16/2020

Aloravita - Phase 3 and 4

67th Avenue and Jomax Road Peoria, Arizona







Legend:



Approximate Test Pit Location

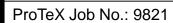


# Site Plan

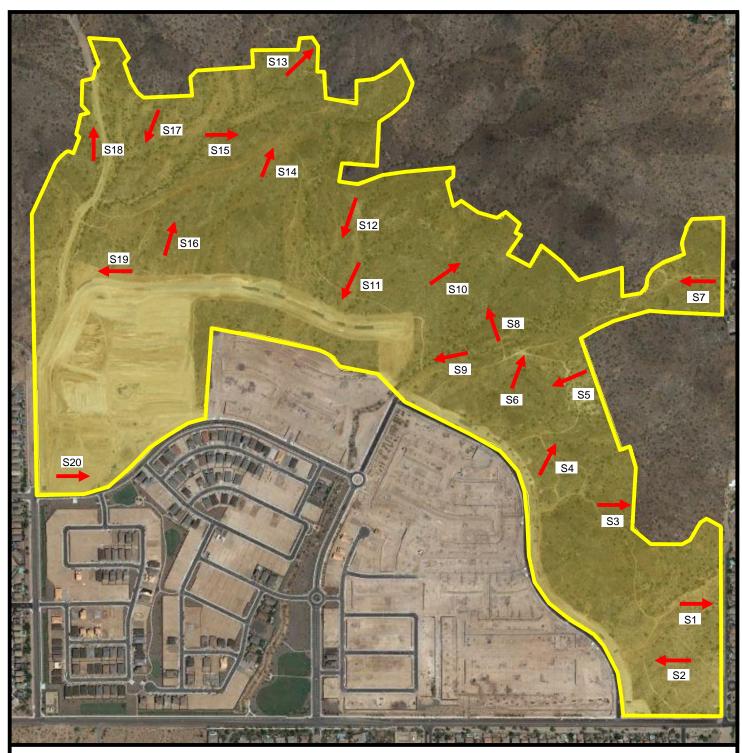
Scale: N.T.S. Drawn by: MSK Date:01/16/2020

Aloravita - Phase 3 and 4

67th Avenue and Jomax Road Peoria, Arizona







Legend:

 $\rightarrow$ 

Approximate Seismic Refraction Line



# Site Plan

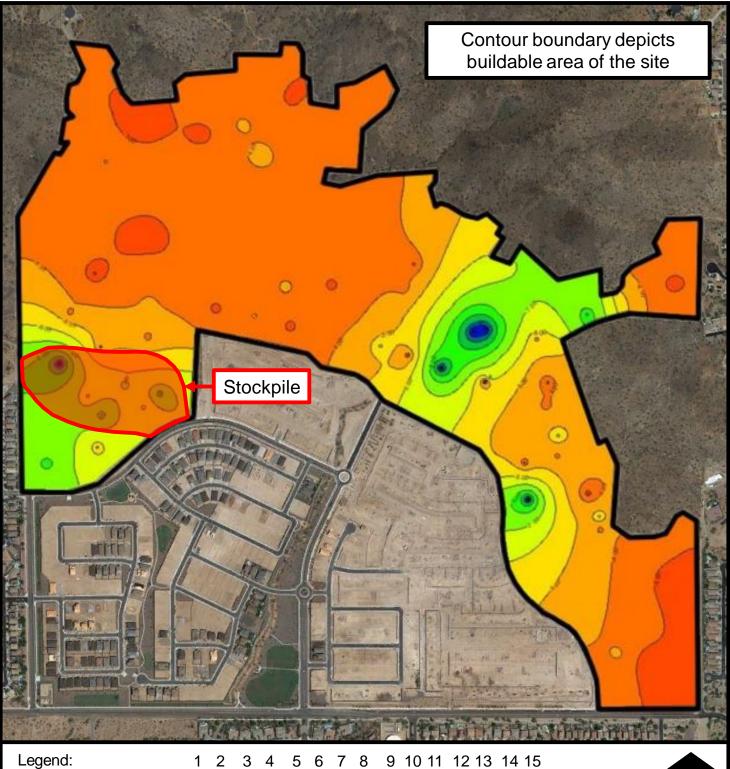
 Scale: N.T.S.
 Drawn by: MSK
 Date:01/27/2020

Aloravita - Phase 3 and 4

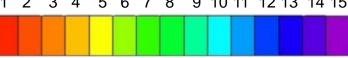
67th Avenue and Jomax Road Peoria, Arizona

ProTeX Job No.: 9821





Refusal Depth (feet)





## Site Plan

 Scale: N.T.S.
 Drawn by: MSK
 Date:02/11/2020

Aloravita - Phase 3 and 4

67th Avenue and Jomax Road Peoria, Arizona

ProTeX Job No.: 9821



# Appendix C

						_ F	PROJEC	T NO.:		98	321		
		CLIENT: Shea Homes Limited Partnership											
{	. #ro∴e /\	PROJECT LOCATION: 67th Avenue and Jomax I	Road										
		LOCATION: See Site Plan						LEVAT					
lLO	G OF BORING	DRILLER: D&S Drilling					_ L	.OGGEI	_			AM 12/23/2019	
	No. B1	DRILLING METHOD: 6" Flight Auger  DEPTH TO - WATER> INITIAL:   A	CTC:	D 24		IDC.							9
	110. D1	DEPTH TO - WATER> INITIAL: # A	$\overline{}$		ПОС	JRS:					> <u>C</u>		
ફફ				Grapnic	ble .	str str	< #200	Plastic	IES Limit ⊢	I KE	SULTS	Liquic	d Limit
Depth (feet)		Description		Z a	Sample No.	Blow Counts	\ \ \		Content		1	Liquie	2
			+				%	Penetra	ation -		<i>772</i> 2		
0	(SM) Silty Sand some (	Gravel, non-plastic, light brown, slightly damp		:::::	9924	6	33	10	<u>20</u> :	<u>30</u> :	40	) 5	<u>:</u>
	(SIVI) SIRLY SAIRE SOILE C	braver, non-prastic, fight brown, slightly damp									:		<u>:</u>
													: :
													:
									· · · · · <del>.</del> · ·				: :
2.5													<u>:</u>
									<del>.</del>				: :
	B Refuse	oring terminated at 3 ft. al due to strong Cementation						<u>.</u>					<u>:</u>
	Keruse	ardue to strong comentation											<u>:</u>
													: :
5								<u>.</u>					: :
								<u>.</u>				:	:
								:	:	:	:		:
								:	:	:	:		:
7.5										:	:		
								:	:	:::::	:		:
								:	:	:	:		:
											:		:
													:
10													: :
													:
										!	• • • • • • • • • • • • • • • • • • • •		: :
										• • • • • • • •	• • • • • • • • • • • • • • • • • • • •		:
										• • • • • • •			:
12.5										• • • • • • • •			:
12.5										• • • • • • •			:
										• • • • • • •	• • • • • • • • • • • • • • • • • • • •		: · · · · · · · · · · · · · · · · · · ·
										• • • • • •	• • • • • • •		<u>:</u>
													<u>.</u>
										•••••	• • • • • • •		<u>:</u>
15								<del></del>		] .			<u>.</u>
													<u>.</u>
								L					<u>:</u>
								<u>-</u>					<u>.</u>
								<u> </u>					: :
17.5								<u> </u>					: :
								<u>.</u>					: :
								<u> </u>					: :
			-										

	- Allering Land	PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO	·:	9821	
l .		CLIENT: Shea Homes Limited Partnership								
<b> </b>	(#ro∴e/\)	PROJECT LOCATION: 67th Avenue and Jomax I	Road							
		LOCATION: See Site Plan				_	ELEVATION:			
LO	G OF BORING	DRILLER: D&S Drilling				_	LOGGED BY:			
	No. B2	DIVIDENTAL OF THE REAL PROPERTY.	ETED 04			_		ATE: _		19
	NO. DZ	DEPTH TO - WATER> INITIAL: ¥ A	FIER 24	HOU	RS:	_		AVING>		
도 œ			<u>일</u>	<u>e</u> .	> ₹	< #200		ST RES		الما الما
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	¥ V	Plastic Limit Water Conten		— Liqui	ia Limit
			٥	S		%	Penetration -		777)	
0			1373799	10024	ļ	34	10 20			50
	(SC-SM) Silty Clayey	Sand with Gravel, low plasticity, tan, slightly		9924		34	<u> </u>			
		damp					L			<u>:</u>
							1 : :	:	÷	:
	50 blows for	5 inches on the first 6 inch interval			N 50					<u> </u>
2.5				1			F		:	:
							: : :	:	:	:
				1			F <del>:</del>			:
							:			:
				1				· · · · · · <del>.</del> · ·	· · · · : <del>:</del> · · · · ·	÷
				1			ļ			
5			THATH.	1			<u> </u>			
	L Refus	Boring terminated at 5 ft. al due to strong Cementation								. <b>:</b>
	Refus	ar due to strong comentation								. <u>:</u>
									<u>:</u>	<u>:</u>
								· · · · · · ; · ·	<u>.</u>	:
7.5								:	:	:
							:		:	:
								:	:	:
							F······:		:	:
10							F		:	
										÷
							ļ			÷
							<u> </u>			
							ļ			
12.5							ļ			÷
							<u> </u>		:	. <del>.</del>
							<u></u>	· · · · · :		: :
							L			
								:	:	:
15									:	:
							: :		:	:
									:	:
							F·····	!	:	
							<u> </u>	!		÷ · · · · ·
							<u> </u>			<u> </u>
17.5							F			<u> </u>
							<u> </u>			
							ļ			·
$\Box$			•	•			•			

				PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT	NO.:		9821		
	l ,			CLIENT: Shea Homes Limited Partnership										
	1	(#ro∴e/	<b>A</b> )	PROJECT LOCATION: 67th Avenue and Jo	max K	oad				\/A TIC	× & 1 ,			
			and the same of th	LOCATION: See Site Plan  DRILLER: D&S Drilling					_	ELEVATIO LOGGED			AM	
	LO	G OF BO	DRING	DRILLING METHOD: 6" Flight Auger					_	LOGGED	_		12/23/2	010
		No. B		DEPTH TO - WATER> INITIAL:   ✓		TFR 24	HOL	IRS:	•			⊏. ING>		.019
		110. 5		DEI III TO - WATER INITIAL. =	_ ^'							RESU		
	Depth (feet)			Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Li	mit	INLOC	<u>⊢</u> Liq	uid Limit
	[fe B			Description		Gra	San	m g	× %	Water Co	ntent -			
									-	Penetration		20	<b>2</b>	E0
	0	(GC) (	`lavev Grav	vel, low-medium plasticity, brown, damp		744	9924	8	41	10	20 : T	<u>30</u> :	40	50
			oray <b>c</b> y Grav	rei, ion medium plasticity, oromi, damp						:				
نو						<b>7 7</b>								
ie si							1				· · · <del>:</del> · · ·			
t d d							1				· · · <del>:</del> · · ·	:		<u>:</u>
tive	2.5									L <u>.</u>	<del>.</del>			<u></u>
dici			Е	Paring terminated at 2 ft										
ng			Refus	Boring terminated at 3 ft. al due to strong Cementation							· · · <del>.</del> . · ·			<del>.</del>
Бе.														
d as											· · · <del>.</del> . · ·			
rete	5													
terp														
be ⊏														
b														
pInc														
ş P	7.5									L				
auc											:			:
oring														
This information pertains only to this boring and should not be interpreted as being indicitive of the site.														
ᇋ												]		
Į,	10									<u></u>				
ins														
erta														
미														
mati														
uţo	12.5									L				
hisi										<u>.</u>	· · · :			
-										: :				
										: 				
	15									÷;				
										<u></u>				
										<u> </u>	j			
	17.5									L				
		<u> </u>				<u> </u>		<u> </u>		· ·	•	•	•	•

			PROJECT: Aloravita - Phases 3 & 4	PROJECT NO.: 9821								
			CLIENT: Shea Homes Limited Partnership									
	{	( #role 🔨 )	<b>PROJECT LOCATION:</b> 67th Avenue and Jor	nax Road								
			LOCATION: See Site Plan				_ E	ELEVATION	l:			
	. ^		DRILLER: D&S Drilling				L	LOGGED B	Y:	I	λM	
	LU	G OF BORING	DRILLING METHOD: 6" Flight Auger				_		DATE	: 12	2/23/201	19
		No. B4	DEPTH TO - WATER> INITIAL: ♀		4 HOL	IRS:	¥			NG> _C		_
				_	Т					RESUL		
	౼		D	Graphic	Sample No.	Blow Counts	< #200	Plastic Limi	<u>t ⊢</u>	INLOGE	Liquid	d Limit
	Depth (feet)		Description	Sraf	∑ä'  ∑ä	[품 중]	V	Water Cont				
					ļ" <u> </u>		%	Penetration	ı - 🛮			
	0	/ O O O O O O O O O		- VT IV	 19924		15	10	20	30	40 5	<u>.</u>
		(GC-GM) Silty Cl	ayey Gravel, low plasticity, brown, damp		3324	ľΙ	10	<u>.</u>		<b>:</b>		:
												:
site.					2			:	:	:	:	:
ihe :									:	:	:	:
ē	2 -							:	:	:	:	:
itive	2.5				1			F	· <u>:</u>		:	:
This information pertains only to this boring and should not be interpreted as being indicitive of the site.								<u> </u>	· <b>:</b> · · · ·	· · <b>:</b> · · · · ·	÷	<u>:</u>
i					1			<u> </u>	. <u>:</u>			<u>:</u>
ĕ												
as		D.C.	Boring terminated at 4 ft. al due to strong Cementation					<u> </u>	<u>:</u>		:	:
ted	5	Refus	al due to strong Cementation						:	:	:	:
rpre								:	:	:	:	:
inte								:	:	:	:	:
g									:		:	:
ō									• 🗄 • • • •	:	÷ · · · · · ·	÷ · · · · ·
PInc												<u>:</u>
sho	7.5							L				<u>:</u>
and								<u> </u>	. į			
ring								<u> </u>				: :
g									:		:	:
this									:	:	:	:
y to	10							:	:	:::::::	:	:
o o									• • • • • • •	••••••	•	:
ains										• • • • • • • • • • • • • • • • • • • •		:
ert.									• 🗄 • • • •	• • • • • • • •	÷ · · · · · ·	:
ē										[		<u>.</u>
mati									. :		.;	: :
Jo	12.5							<u> </u>	. <del>.</del>		: .;	: :
is								<u> </u>				:
F								l				:
								:	:	:	:	:
											· · · · · · · · · · · · · · · · · · ·	:
										••••••	· · · · · · · · · · · · · · · · · · ·	: · · · · · · · · · · · · · · · · · · ·
	15								·		÷ · · · · · · ·	
								<u> </u>	· {· · · ·		÷	
								ļ			÷	<u>:</u>
								<u> </u>			<u>:</u>	: :
								<u> </u>	. <b>.</b>			<u>.</u>
	17.5							l				:
								[ :	:	:	:	:
								·····	:	:	:	:
								<u> </u>	• :• • • •	!	<u>:</u>	:

		PROJECT: Aloravita - Phases 3 & 4				F	PROJEC1	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership									
4	(ForeX)	PROJECT LOCATION: 67th Avenue and Joma	ax Road								
Ι ΄		LOCATION: See Site Plan					ELEVATION	ON:			
1		DOLLED. Dec Dalling				_	LOGGED			AM	
ILO	G OF BORING	DRILLING METHOD: 6" Flight Auger				_ '	LOGGED	DAT		12/23/20	
	No. B5	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	1 HOL	De.	_			L ING>		719
$\vdash$	140. 03	DEPTH TO - WATER> INITIAL. #	AFIER 24	<del>+ 1100</del>	KO.	_					
문요			<u>i</u>	용 .	× si	< #200	Plastic Li		TRESL	<u>JLTS</u> —∣ Liqu	اما انمنا
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	<del> </del>	Water Co			Liqu	JIQ LITTII
			ا ن	Ö	- o	%	Penetrati			77	
0							10	20	30	40	50
	(SC) Clayey Sand with	Gravel, low-medium plastiticy, brown, slight	tly ////	99250	P	29		:	7 :	:	:
	, , ,	damp		1				: : : : : : :	:::::	:	:
			/////	1							
	50 blows for	6 inches on the first 6 inch interval	<i>\;</i> /://;/	├─	N		77777	<del>///</del> /	<del>////</del>	<del>77</del> 777	<del>.</del>
			;:/::/::/::/:	1	50			<u>////</u>	<u> </u>	<u> </u>	<u> </u>
2.5	В	foring terminated at 2 ft. al due to strong Cementation					L <u></u>				
	Kefusa	at due to strong Cementation				1	:	:	:	:	:
						1	[ :	:	:	:	:
								:	:::::	:	:
											· <del>.</del>
5							L	:	:		. :
									;		. :
							:			:	
								:		:	:
								• • • • • • •	• • • • • • • • •		• 🗄 • • • • •
7.5							<u> </u>				
							ļ	;	;	;	. ;
							L			;	
							:	:		:	:
										:	
10											• • • • • • • •
10								• • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• :
							ļ				
							<u></u>				
						1	L				
12.5						1	[	:			
							<u> </u>			:	
						1	F · · · · · : · ·	• • • • • • •	• • • • • • •		
						1	<u> </u>				
							<b> </b> ;				
						1	<b>.</b>		;		
15						1	L				
						1	F	• • • • • • • • • • • • • • • • • • • •	!	:	:
						1	·····	• • • • • • •	• • • • • • • •	• • • • • • • • • • • • • • • • • • • •	::
							<u> </u>				
						1	ļ				
17.5							<u> </u>		;		
							<u>L</u>				
						1	[	:		:	:
							<u> </u>	• • • • • • •			- :

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:	9821
		CLIENT: Shea Homes Limited Partnership						
{	(Fole X)	PROJECT LOCATION: 67th Avenue and Jomax I	Road					
<b>l</b> '		LOCATION: See Site Plan				E	ELEVATION:	
۱. ۾	0.0000000000000000000000000000000000000	DDU LED. Dec Dellier					OGGED BY:	
LO	G OF BORING	DRILLING METHOD: 6" Flight Auger						12/23/2019
	No. B6	DEPTH TO - WATER> INITIAL: \(\forall \) A	FTFR 24	1 HOU	IRS:	•		IG> <u>C</u>
	110. D0	DEFINITO TAXTERO MITTALE 9A	1	1		_		RESULTS
۾			Graphic	Sample No.	≥ ₹	< #200	Plastic Limit	
Depth (feet)		Description	jrap	Z al	Blow Counts	<del>     </del>	Water Content -	
				J",		%	Penetration -	
0			4.2.2.2	10005			10 20	
	(SC) Clayey Sand with	Gravel, low-medium plastiticy, brown, damp		9925		23	L	
			////	1				
				1				
			17.77	1				
			[ <i>/////</i> ,	1			<u>-</u>	
2.5			17/7	1			<u> </u>	
			Y././.	1			<u> </u>	
			\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.	1			L <u>.</u>	
			<u> </u>	1				
	В	oring terminated at 4 ft. due to highly Weathered Rock	$T^{T}$				: :	
5	Refusal	due to highly Weathered Rock					ļ	
							<u> </u>	
							<b>-</b>	
							<u> </u>	
							L	
7.5								
							Ī	
							: :	
10							<b>-</b> :	
							<b>L</b>	
							<u>[</u>	
							[ : : : : : : : : : : : : : : : : : : :	
12.5							T · · · · :	
12.5							F · · · · · · · · · · · · · · · · · · ·	
							<del> </del>	
							<u>-</u>	
							<b> </b>	
							<u></u>	
15								
								: : : : : : : : : : : : : : : : : : : :
							<u> </u>	
							<u> </u>	
							<u> </u>	
17.5							<b></b>	
							<u> </u>	
							<u>[</u>	
				<u> </u>	L	<u> </u>	<u> </u>	
I								

				PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO.:	98	21	
				CLIENT: Shea Homes Limited Partnership								
	(	(FoleX)		PROJECT LOCATION: 67th Avenue and Jon	max R	oad						
	,			LOCATION: See Site Plan					E	ELEVATION:		
		005000		BRULES DAGEN III					_	LOGGED BY:	AN	1
	LO	G OF BORIN	١G	DRILLING METHOD: 6" Flight Auger						DATE:		3/2019
		No. B7		DEPTH TO - WATER> INITIAL: ♀	AF	TER 24	HOU	IRS:	<u>*</u>	CAVING		2019
		110. 57		DEL III TO TAXTER MITTALE.					_			
	# ÷					Graphic	<u></u> 등	× s	< #200	TEST RES		Liquid Limit
	Depth (feet)			Description		Гар	Sample No.	Blow Counts	#   v	Water Content - •	1	Liquid Littiit
						٥	S		%	Penetration -	7773	
	0									10 20 30	40	50
		(SM) Silty	Sand	with Gravel, non-plastic, brown, damp			9925	ľ	24		:	:
je.											• • • • • • • • • • • • • • • • • • • •	:
e si										<del></del>		
٦ ټ										<u> </u>		
Ve V	2.5									L		<u>:</u>
ij								1		<u> </u>		<u>:</u>
in		_	E	Boring terminated at 3 ft. due to highly Weathered Rock				1			:	:
ing		Ref	usal	due to highly Weathered Rock				1			:	:
s be										: : :	:	:
sd a	_										• • • • • • • • • • • • • • • • • • • •	· · · · · · <del>.</del> · · · · · · · · ·
ret	5									:	:	
terp										<u>-                                    </u>		
e ju												
ot p										L		:
u p											:	:
pon	7.5										:	:
s þi	7.5									F·····:		
gar											:	
orin										<u> </u>		
d si										<u>-</u> :	;	
o th										<b>-</b>		
ly t	10									L		<del>.</del>
s or											:	
tain												
ber										F		
ion											• • • • • • • • • • • • • • • • • • • •	
mat										<u></u>		
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	12.5									<u> </u>		
isi										<u> </u>		
F										L		
											:	
											:	:
	1.									······································		
	15									<u> </u>		
										<u>-                                    </u>		
										ļi.		
										<u> </u>		
										L		
	17.5											
										· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	
										<u> </u>	• • • • • •	

		PROJECT: Aloravita - Phases 3 & 4					F	PROJECT	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership										
{	(#ro∪e/A)	PROJECT LOCATION: 67th Avenue and Jon	nax R	oad								
		LOCATION: See Site Plan						ELEVATIO				
م با	G OF BORING	DRILLER: D&S Drilling					_ [	LOGGED E	3Y: _		AM	
-0		<u>o ingminager</u>							DAT		12/23/2	2019
	No. B8	DEPTH TO - WATER> INITIAL: ♀	_ AF	TER 24	HOI	IRS:	<u>¥</u>			ING>		
۲ ۵				j <u>e</u>	<u>o</u>	_ &	8			RESU		
Depth (feet)		Description		Graphic	Sample No.	Blow	< #200	Plastic Lin Water Cor			— Lic	quid Limit
				Ō	ű	1 0	%	Penetration			73	
0								10	20	30	40	50
	(SM) Silty Sand w	rith Gravel, non-plastic, light brown, damp						L				
								:	:	:	:	:
									:	:	:	:
	50 blows for	5 inches on the second 6 inch interval				13 50			77//	7777	7777	7
2.5												<b>/</b> /
2.5									:	:	:	<del></del>
									· · <del>.</del> · · ·			
									· · <del>:</del> · · ·	:		
								<u> </u>				
	D	1 4 4 5 6			-							
5	B Refusal	oring terminated at 4.5 ft. due to highly Weathered Rock						<u> </u>				
	rerusus	due to highly Woudered Rook						ļ			:	
									į			
								L	::::::			
								:				
7.5								:	:		:	:
											:	:
								:	:		:	:
								<u></u>				
										• • • • • • • •		
10								<u> </u>	••••••	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•••••••
									į			
								<b>-</b> ;			;	
12.5								L				
								<u>.</u>				
										;		
								<u> </u>				
								:	:		:	:
15								:				:
									:::::::::::::::::::::::::::::::::::::::	!		:
								F·····		!		
								<u> </u>				
								<u> </u>				
17.5								<u> </u>				
								<u> </u>				
								<b> </b>				
						•		•				
1												

					F	PROJECT N	O.:	9821					
		CLIENT: Shea Homes Limited Partnership											
	( ro e X	PROJECT LOCATION: 67th Avenue and Jo	omax R	max Road									
		LOCATION: See Site Plan					E	ELEVATION:	:				
٦. ـ		DDILLED: DOGD 'II'					_	LOGGED BY					
	G OF BORING	DRILLING METHOD: 6" Flight Auger								12/23/20	110		
	No. B9	DEPTH TO - WATER> INITIAL:   ✓	Λ =	TED 2	I HOI	IDQ.	_		CAVING>		/1/		
	140. 23	DEFINITO - WATERS INITIAL: =		I LIX Z	1100								
ے ع				. <u>2</u>	<u>e</u>	> &	% < #200	T	EST RES				
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	\ ₩	Plastic Limit Water Conte		— Liqu	iia Limit		
				Ō	ιχ	ات ما	%	Penetration		7773			
0									20 30		50		
	(SM) Silty Sand	some Gravel, non-plastic, brown, damp			9925	₿	31	: :		· :	:		
-	-	r						<u> </u>	<u> </u>				
, I—									<b>:</b>		· <del>:</del> · · · · ·		
								<u> </u>	<u>.</u>		. <u>:</u>		
<u> </u>								<u>:</u>	<u>.</u>				
5 u 2.5								:	: :	:	:		
<u> </u>										:	:		
Í	1							t	:	:	:		
2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	-							<u> </u>	÷ · · · · · · · · ·		· <del>:</del> : · · · · ·		
<u> </u>	-							<b>-</b>	<u>:</u>		. <u>:</u>		
g									<u>.</u>				
5								:	: :	:	:		
5.	Soil transit	ions to trace Gravel, slightly damp			9925	†	21	:		:	:		
ש ש								:	: : : : : :	:	:		
¥ 📗									<u> </u>				
₫	_							<u> </u>	ļ <u>i</u>				
₿									<b>:</b>		. :		
7.5								L	<u>.</u>				
₽								:	: :	:	:		
										:			
<u> </u>													
<u> </u>	_								:·····!··		• :		
Ē	_								į <u>.</u>				
10								L	<u>;</u> ;	;			
2								L	<u>.</u>		. <del>.</del> 		
<u> </u>								:	: :	÷	:		
<u> </u>										:	:		
	1							t			· : · · · · · · · · · · · · · · · · · ·		
<u> </u>					9925	\$	19	·····	<u> </u>		• • • • • • •		
12.5	-							F	<u> </u>				
12.5	-							<b> </b>	÷				
-								L;	<u>;</u>		. <del>.</del>		
										:	:		
								[ : : : : : : : : : : : : : : : : : : :	: : : : : :	:	:		
1.5	1							F······		:	• • • • • • •		
15	D	oring terminated at 15 ft.			1			<b>+</b> ·····	:i				
-	-  D	ormg terminated at 13 ft.						<u> </u>	<u> </u>				
								ļ	<u> </u>				
								<u> </u>	<u>.</u>				
										:			
17.5								· · · · · · · · · · · · · · · · · · ·			. :		
1,.5	1							F	t in	: : : : : : : : : : : : : : : : : : : :	• • • • • • •		
	-							ļ	<u> </u>				
	_							<b> </b>	<u>.</u>				
	_L												

			PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT NO.:		9821				
			CLIENT: Shea Homes Limited Partnership												
	{	( #roJe X )	PROJECT LOCATION: 67th Avenue and Jon	omax Road											
			LOCATION: See Site Plan					_ E	ELEVATION: _						
	. ^		DRILLER: D&S Drilling					L	OGGED BY:		AM				
	LU	G OF BORING	DRILLING METHOD: 6" Flight Auger					_	DAT		2/23/20	19			
		No. B10	DEPTH TO - WATER> INITIAL: ♀		TER 24	HOU	IRS:	<u>*</u>		ING>					
				_						T RESUL					
	£ £		D		Graphic	Sample No.	Blow Counts	< #200	Plastic Limit ⊢			d Limit			
	Depth (feet)		Description		3rag	ğ ğ	[품 중]	٧	Water Content -						
						"		%							
	0				। सन्दर्भ स	9925	<u> </u>	20	10 20	30	40 5	50			
		(SM) Silty Sanc	l with Gravel, non-plastic, brown, damp			0020	ľl	20				<u>:</u>			
site.									: :	:	:	:			
je:									: :	:	:	:			
P	2 -								-······ : :	:	:	:			
tive	2.5								<del>:</del> <del>:</del>	: :		:			
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		т	Paring terminated at 2 ft			-					÷ · · · · ·	<u>:</u>			
ē		l Refusal due to W	Boring terminated at 3 ft. eathered Rock and moderate Cementation						<u> </u>			<u>:</u>			
ei		recrusur due to W	curiored recent and moderate comentation									:			
as									<u> </u>		:	<u>:</u>			
ted	5								: :	:	:	:			
pr									: :	:	:	:			
inte										:	:	:			
৪												:			
ē											$\vdots \cdots \cdots$	÷ · · · · ·			
崩												<u>:</u>			
sh	7.5										<u>:</u>				
and												<u>:</u>			
ing											:	:			
ᅙ											:	:			
this										:	:	:			
y t	10									:	:	:			
									<u></u> ::		:	:			
ins										!	÷ · · · · ·	÷ · · · · ·			
ert.												<u>.</u>			
<u>e</u>												<u>.</u>			
nati												<u>.</u>			
힐	12.5										.;	: ::			
isi												<u>:</u>			
ᇀ										:	:	:			
											:	:			
												:			
	15									]		<u> </u>			
									ļ			<u>.</u>			
									<u></u>			<u>;</u>			
									<u> </u>	;		<u>:</u>			
									L			<u>:</u>			
	17.5									:	:	:			
									<u> </u>	!	:	:			
									<u> </u>		::	:			
									<u> </u>			<u> </u>			

ſ			PROJECT: Aloravita - Phases 3 & 4				1	PROJECT NO.: _	9821
- 1			CLIENT: Shea Homes Limited Partnership					_	
	4	(FoeX)	<b>PROJECT LOCATION:</b> 67th Avenue and Jomax 1	Road					
1			LOCATION: See Site Plan				ı	ELEVATION:	
			BBULED: DOGD W				_	LOGGED BY:	AM
1	LO	<b>G OF BORING</b>	DRILLING METHOD: 6" Flight Auger				_ '	DATE:	
		No. B11	DEPTH TO - WATER> INITIAL:   A  A	ETED 2/	I HOI	IDG.	_	CAVIN	
ŀ		140. D11	DEPTH TO - WATER> INITIAL. * A	TIER 24	HOU	IKS.	_		
	۲ 🦳			<u>ූ</u>	<u>e</u>	> &	< #200		RESULTS
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	#		Liquid Limit
				ত	တိ	ا ۳	%	Water Content - Penetration -	•
ı	0								30 40 50
ı		(SC) Clavey Sand some	Gravel, medium plastiticy, brown, slightly dam	p////	9925	7	32	: :	
ŀ				· //////					
نه				1///	1				
sit		50 1.1 £-	a Cinches and the first Cinche interest		1	N		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	: : : : : : : : : : : : : : : : : : :
ا څ		50 blows to	r 6 inches on the fist 6 inch interval	7.7.7.7		50			<u>//////</u>
e o	2.5			////	1			: :	: : :
<u></u>					1				: : :
ğ					1				
ng i				/////	]			<u> </u>	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		·	2	<i>\\\</i> \'\'\	1			<b> </b>	
as		Pefusal due to W	Boring terminated at 4 ft. eathered Rock and moderate Cementation						.:
et e	5	ixerusar due to w	cathered Nock and moderate Cementation					L	
ĕ									
ig									
8									- [ ] [
Ē									
핅								ļ	. [ ] [
å	7.5							L	
and								L	: : : : : : : : : : : : : : : : : : : :
ing									
ğ									
this									
₫									. [ ] [
ᇍ	10							<u> </u>	. [ ] [
S C									.;;;
īgi									
<u> </u>									
ξį									
Ĕ	12.5							F	- [ ] [
Ĕ	12.5								. [
į								<u> </u>	
٦									. j j
								<u> </u>	
	15								
j				1				<b>.</b>	· [ · · · · · · · · · · · · · · · · · ·
ı				1					
ŀ				1				<u> </u>	
J				1				<u></u>	. į į į
				1				<b>L</b>	
1	17.5			1				L	
j				1					
Ì									· [· · · · · · · · · · · · · · · · · ·
l				<u> </u>				<u> </u>	
1									

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership										
{	#ro∪e/\\	PROJECT LOCATION: 67th Avenue and Jo	max R	oad								
		LOCATION: See Site Plan					_	ELEVATIO				
lLO	<b>G OF BORING</b>	DRILLER: D&S Drilling					_ [	OGGED	_			
	No. B12	DRILLING METHOD: 6" Flight Auger DEPTH TO - WATER> INITIAL: ♀	Λ.	TED 24		IDC.	_			E:		2019
L	110. D12	DEPTH TO - WATER> INITIAL: *	<u> </u>		ПОС	JRS:				ING>		
复읈				Graphic	Sample No.	w nts	% < #200	Plastic Lir	nit ⊢	TRESU	JLIS — Ii	auid Limit
Depth (feet)		Description		Grap	San	Blow Counts	** V 0	Water Co	ntent -	•	, -	9
					-		\ <u>\</u>	Penetration	on - [			50
0	(SM) Silty Sand	trace Gravel, non-plastic, brown, damp			-			10	<u>20</u>	<u>30</u>	40	<u>50</u>
	(Sivi) Sirty Starte	trace Graver, non prastic, orown, damp						<u>-</u> :		:		
								<u>:</u>				
								<u>-</u> :				
2.5								L				
	Т	2-1						<u>-</u>				‡
	Refusal du	Boring terminated at 3 ft. ue to moderately Weathered Rock						ļ <u>:</u>				<del>.</del>
								<u>.</u> :				
5												
								<u></u>				
								<u> </u>	į	;		
										:		
										;		
7.5								<u> </u>		;		
								<u> </u>	;	;		į
								<b>.</b>	;	;	;	į
									;	;		
										;		
10									į	;		
										;		
										;	;	
								<u> </u>		;		
12.5								<u> </u>				
								<u> </u>	į			
								<u> </u>				
								<u> </u>				
								<u></u>	į			
15								L				
								L <u>.</u>				
										:		:
								L				
								[ :			:	
17.5								[			:	
								[ : : : : : : : : : : : : : : : : : : :	:	!	:	
									:	:	:	:
								<u> </u>		:		

No. B13  Description  Descript	821
LOG OF BORING No. B13    Coartion: See Site Plan   DRILLER: Jax Definite   DRI	
LOG OF BORING No. B13    Comparison   Compar	
LOG OF BORING No. B13    Second of Boring and the properties of th	
DRILLING METHOD: 6"Flight Auger DEPTH TO - WATER'S INITIAL: \$\pi\$ AFTER 24 HOURS: \$\pi\$ CAVINGS \$\frac{1}{2} \frac{1}{2} \frac	<u></u> М
NO. B13 DEPTH TO - WATER> INITIAL:  AFTER 24 HOURS:  CAMNOS C TEST RESULT TEST RESULT Value Content:  Plant of the property of	/23/2019
Description    Comparison   Com	
glade by the partial of the partial	
o (SM) Silty Sand trace Gravel, non-plastic, brown, damp  (SM) Silty Sand trace Gravel	
o (SM) Silty Sand trace Gravel, non-plastic, brown, damp  (SM) Silty Sand trace Gravel	Liquid Lillin
SM) Silty Sand trace Gravel, non-plastic, brown, damp  (SM) Silty Sand trace Gravel, non-plastic, brown, damped Gravel, non-plastic, brown, da	
Boring terminated at 4 ft.  Refusal due to moderately Weathered Rock  7.5  10  11  12.5  15  15  15  15  15  15	0 50
15	
15	:
15	
15	:
15	<del>.</del>
15	
15	
15	<del></del>
15	
15	
15	:
15	:
15	:
15	
15	• • • • • • • • • • • • • • • • • • • •
15	
15	
15	
15	
15	
15	
15	
15	
15	
15	
15	
15	
15	
15	
	:
	:
17.5	
17.5	· · · · · · · · · · · · · · · · · · ·
17.5	
17.5	
17.5	

CLIENT: Sheat Homes Limited Partnership PROJECT LOCATION: 57th Arenus and Jonasz Road LOCATION: See Site Plan DRILLER: BAS Delining DRILLING METHOD: 67 Flight Auger DEPTH TO - WATER NITIAL:  Description  O(SM) Silly Sand some Gravel, non-plastic, brown, damp  Soil transitions to with Gravel, grey, slightly damp  Description  Description  Soil transitions to with Gravel, grey, slightly damp  Description  D							_ F	PROJE	CT NC	).:	9	821		
LOG OF BORING NO. B14    Comparison	<b>l</b> .		CLIENT: Shea Homes Limited Partnership											
LOG OF BORING No. B14   DRILLING METHOD: 6" Flight Auger   AFTER 24 HOURS: V CAVING> 6" C	<b> </b>	(#ro∪e/\\)		max Road										
Description	1							_						
No. B14   DEPTH TO - WATER> INITIAL:   AFTER 24 HOURS   CAVINGS	ILO	G OF BORING	,					_ L	.OGGE					
Description  Descr				A E T E E			100.							<u>19                                    </u>
Column   C		NO. D14	DEPTH TO - WATER> INITIAL: ¥	_ AFTER	₹ <b>2</b> 4	нос								
Column   C	분 <del>호</del>			2	≌	e .	, ≱t	200	Plactic					id Limit
Column   C	Geb (fee		Description		7ab	Sam	Blo	<b>*</b>					Liqui	u Liiiii
(SM) Silty Sand some Gravel, non-plastic, brown, damp  (SM) Silty Sand some Gravel, gravel, damp  (SM) Si						0)		%	Penetr	ration -				
(Sid) shy Said Solic Gravel, itel plaste, thou, talip  2.5  Soil transitions to with Gravel, grey, slightly damp  5. Soil transitions to with Gravel, grey, slightly damp  7.5 Refusal due to moderately Weathered Rock  10  11  12.5	0	/CD D C'11		11:11:1	1114	9925		41	10	0 20	) 3	0 4	<u>.</u> 5	<u>50</u>
2.5 Soil transitions to with Gravel, grey, slightly damp  Boring terminated at 7 ft. Refusal due to moderately Weathered Rock  12.5  12.5  15  16  17  18  19  19  19  19  19  19  19  19  19		(SM) Silty Sand	some Gravel, non-plastic, brown, damp			0020		••		:			:	<u>:</u>
2.5 Soil transitions to with Gravel, grey, slightly damp  Boring terminated at 7 ft. Refusal due to moderately Weathered Rock  12.5  12.5  15  16  17  18  19  19  19  19  19  19  19  19  19													:	
12.5													:	<u>:</u>
12.5									<u> </u>				<u>:</u>	<u>:</u>
12.5	2.5								L				<u>:</u>	<u>:</u>
12.5									<u>.</u>	<u>:</u>			:	<u>:</u>
12.5									Ĺi		:		:	<u>:</u>
12.5	' <b>l</b>								i	:	:		:	:
12.5													:	
12.5	5									:			:	:
12.5		Soil transition	s to with Gravel, grey, slightly damp		111	9926	P	29		:	:		:	:
12.5										:	:		:	:
12.5									[	:	:		:	:
12.5									[ : : : : : : : : : : : : : : : : : : :	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •		:	:
12.5	7.5	В	Boring terminated at 7 ft.  Refused due to moderately Weathered Rock	11:11:										
12.5	1.5	Refusal du	e to moderately Weathered Rock						[ · · · · ·					
12.5	,													
12.5										· · · · · · · · · · · · · · · · · · ·	• • • • • • • •		:	:
12.5									·····:				:	:
12.5	10									:	• • • • • • • • •		<u> </u>	:
12.5									<u>-</u>	· · · · · · · : :	• • • • • • • •		:	:
12.5									-······ 	· · · · · · · : :	• • • • • • • • • • • • • • • • • • • •		:	:
12.5									-·····: 	· · · · · · · : :	• • • • • • • •		} · · · · · · ·	:
15									-·····:   	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		· · · · · · ·	
15									<u> </u>	• • • • • • • • • • • • • • • • • • • •			<u>:</u>	
15	12.5									· · · · · · · : :			: :	
										· · · · · · · · : :	· · · · · · :		} · · · · · · · · · · · · · · · · · · ·	:
										· · · · · · · : :	:		; :	
									<u> </u>	• • • • • • • •	• • • • • • •			<u> </u>
17.5	15													<u> </u>
17.5											• • • • • • • •			<u> </u>
17.5									<u> </u>	·····i	• • • • • • • •		<u>:</u>	<u> </u>
17.5									<u> </u>					<u> </u>
17.5									ļ					<u>.</u>
	17.5								ļ					<u>:</u>
									<u>.</u>				<u>:</u>	<u>:</u>
									<u>.</u>	;			:	<u>:</u>

1				PROJECT: Aloravita - Phases 3 & 4		PROJECT NO.: 9821												
			Z.	CLIENT: Shea Homes Limited Partnership														
	{	#roje 🔨	( )	PROJECT LOCATION: 67th Avenue and Jo	max R	ıx Road												
				LOCATION: See Site Plan					_ E	ELEVATION:								
	. ^			DRILLER: D&S Drilling					L	OGGED BY:		AM						
	LU	G OF BOF		DRILLING METHOD: 6" Flight Auger						D	ATE:	12/23	/2019					
		No. B15		DEPTH TO - WATER> INITIAL: ♀	AF	TER 24	HOU	IRS:	¥		CAVING> C							
					_						ST RES							
	£ £			Description		Graphic	Sample No.	Blow	< #200	Plastic Limit			iauid Limit					
	Depth (feet)			Description		Jak	ğ ğ	ਜ਼ੑਫ਼	V	Water Conter								
							"		%	Penetration -								
	0	103 B 014	. ~ .			 गरागगरा	-			10 20	30	40	50					
		(SM) Sil	Ity Sand	trace Gravel, non-plastic, brown, damp						<u></u>								
										l								
ite.										: :	:	:	:					
je :		50 blo	ows for 4	4 inches on the third six inch interval				10 23			7////	////	73→					
٩.	۰.							50					//:					
tive	2.5												//					
dici								1		<del>[                                    </del>	·····	···:	<del>!</del>					
This information pertains only to this boring and should not be interpreted as being indicitive of the site.										<u> </u>								
bein										<u></u>			:					
as		D.	E 1	Boring terminated at 4 ft. ue to moderately Weathered Rock						<u> </u>								
ted	5	Re	erusar at	ie to moderately weathered Rock		"				: :	:	:	:					
rpre										[	:	:	:					
inte										:		: : :	:					
g																		
D D											• • • • • • • • • •	• • • • • • •						
ono																		
l sh	7.5																	
and										<u> </u>		;						
ring										L								
8										<u> </u>								
ţ											:	:	:					
y to	10										:	:	:					
on s										· · · · · · · · · · · · · · · · · · ·	:	: :	:					
ains										<u> </u>								
per												• • • • • • • • • • • • • • • • • • • •						
ë																		
mat										<u></u>								
뒣	12.5									L								
isi										<u> </u>								
⊨										<u>.</u>								
											:	:	:					
										[ : : : : : : : : : : : : : : : : : : :	:	:	:					
	15									=		:	:					
	13										· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •						
										<u> </u>								
										ļ								
										<u> </u>								
	17.5									L								
										[ : :	:	:						
								<u> </u>		·····:								

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT	vo.: _	9	821	
		CLIENT: Shea Homes Limited Partnership									
. (	(#ro∆e/\\)	PROJECT LOCATION: 67th Avenue and Joma	x Road								
		LOCATION: See Site Plan				_	ELEVATIO				
LO	G OF BORING	DRILLER: D&S Drilling				_ L	LOGGED B			M	
	No. B16	DRILLING METHOD: 6" Flight Auger	4 FT F D 0		IDO:			DATE:			19
	NO. D 10	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	HOU				CAVIN			
# ÷			을	<u>용</u> .	w Its	< #200	Plastic Lim	TEST R			dlimi
Depth (feet)		Description	Graphic	S B B	Blow Counts	#   V	Water Con			Liqui	u Liiiii
				0)		%	Penetration	n - 🛚 🗸			
0	(0.0.03.0.03101	0 1 11 0 11 1 1 2 1 11 1	או או או	9926	ļ	21	10	20 3	30 4	10 5	50
	(SC-SM) Silty Clayey	Sand with Gravel, low plasticity, light brown		3320			<u> </u>		<b>.</b>		<u>:</u>
		slightly damp		1			<u> </u>		<u>:</u>		<u>:</u>
				]				<u>:</u>	:	:	<u>:</u>
				4			L		:	:	<u>:</u>
2.5				1			:	:	:	:	:
				1			[ :	:	:	:	:
							:	:	:	:	:
				1			<u> </u>	:	:	:	:
$\dashv$				1			<u> </u>	:	:	:	:
<u> </u>				1			F	:	:	:	:
5	(CNA) C'14 C 14		5-7'-	9926	2	16	L		:	:	÷ · · · ·
	(SM) Sifty Sand tra	ace Gravel, non-plastic, tan, slightly damp							· · · · · ·	:	÷ · · · ·
									į	<b>:</b>	<u>:</u>
							<u>-</u>			<u>:</u>	<u>.</u>
							<u>-</u>		·	: :	<u>:</u>
7.5							L		<b>:</b>	<b>.</b>	<u>:</u>
							ļ		<u>.</u>	: :	<u>:</u>
							<u> </u>	: :::	<u>:</u>	: :	: :
							<u>.</u>		<u>.</u>	: :	<u>:</u>
									<u>:</u>	: :	<u>:</u>
10							<u>.</u>		:	:	:
							<u> </u>			<u>:</u>	<u>:</u>
.							:	:	:	:	:
							[ :	:	:		:
							[ :		:	:	:
12.5				9926	₿	22	<u> </u>		:	:	
							F	:		:	:····
							<u> </u>	:	:	:	:
-							F·····	. :	:	: :	:
							<u> </u>				÷ · · · ·
							<u> </u>			<u>:</u>	÷ · · · · ·
15	ת	oring terminated at 15 ft.		1			<u> </u>		· · · · · ·		<u>.</u>
	В	oring terminated at 15 ft.					<u> </u>		· · · · · ·		<u>.</u>
							ļ		·	<u>.</u>	<u>.</u>
							ļ		<u>.</u>	: :	<u>:</u>
							ļ		<u>.</u>	<u>:</u>	<u>:</u>
17.5							L		<b>;</b>	<b>:</b>	<u>:</u>
							<u> </u>	:	:		:
							1				:
									:		

		PROJECT: Aloravita - Phases 3 & 4				_	ROJECT	NO.: _	5	9821	
		CLIENT: Shea Homes Limited Partnership									
{	. #ro∴e /\_)	PROJECT LOCATION: 67th Avenue and Jon	nax Road								
		LOCATION: See Site Plan				_	LEVATIO				
LO	<b>G OF BORING</b>	DRILLER: D&S Drilling				_ L	OGGED E	_		M	
	No. B17	DRILLING METHOD: 6" Flight Auger DEPTH TO - WATER> INITIAL: ♀	AFTER 24	ייסוו	De. T			DATE		/23/2019	
1	110. D1/	DEPIR TO - WATER> INITIAL: #	_ AFIEK 24	ПОО		_			NG> C		
£ £			흗	ble	× tr	< #200	Plastic Lim		RESULT	S Liquid I	Limit
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	*	Water Con		•	Liquid	LIIIII
				0	$\Box$	%	Penetratio	n - 🛮			
0	(00) 01 0 11	1' 1 2' '2 1' 121 1' 121 1'	07 K1	9926		45	10	20 1 ·	30 <u>4</u>	<u>10 50</u>	1
	(GC) Clayey Gravel, lov	v-medium plasticity, light brown, slightly of	amp								
							<u>.</u>	. :	:	<u>:</u> <u>:</u> .	
2.5				1			<u> </u>				
							<u>.</u>			<u> </u>	
			1/2/2				<u>.</u>	:	:	:	
										<u> </u>	
							:				
5								:	:		
	(SM) Silty Sand w	ith Gravel, non-plastic, tan, slightly damp	→-/ <b>1</b>	9926	5	26	<u> </u>	:	:	: :	
	()							:	:		
								:	:		
							-·····································	:		: : : :	
7.5								:	:	: :	
7.5								:		: :	
							: :	• • • • • • •	!	<u> </u>	
								:		:····:	
							=······: :	•		<u>:</u>	
10							=	• • • • • •		:	
10								• • • • • •	•••••••	} · · · · · • • •	
								• • • • • •	• ! • • • • •	1	
								• • • • • •		<u> </u>	
								: ::	!	} · · · · · · · · · ·	
				9926		21				} <u>-</u>	
12.5										} <u>}</u>	
								• • • • • •		} <u>-</u>	
									[		
										<u> </u>	
										} · · · · · · }·	
15	ת	oring terminated at 15 ft.					<u> </u>		]	} · · · · · }	
	В	oring terminated at 15 ft.								<u> </u>	
							L			ļ	
							<u>-</u>			<u>.</u>	
							<u> </u>			<u>.</u>	
17.5							<u> </u>			<u>.</u>	
							<u> </u>			<u> </u>	
							<u>.</u>			<u>.</u>	
							<u> </u>				

			PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:		9821		
			CLIENT: Shea Homes Limited Partnership									
	{	( #role X )	PROJECT LOCATION: 67th Avenue and Jomes	ax Road								
			LOCATION: See Site Plan				_	ELEVATION: _				
	10	G OF BORING	DRILLER: D&S Drilling				_	LOGGED BY:		AM		
	LU		DRILLING METHOD: 6" Flight Auger					DA1	ΓE:	12/23/2	2019	
		No. B18	DEPTH TO - WATER> INITIAL:	AFTER 24	I HOU	RS:	<u>*</u>	CA\	CAVING> <u>C</u>			
				٦ °	0	, n	g	TES	TRESU	RESULTS		
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit ⊢		⊢ Lio	uid Limit	
	اڭ ق		2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5	Sa		×   %	Water Content		71		
	•							Penetration -	30	⊿ 40	50	
		(SC-SM) Silty Clave	ey Sand, low plasticity, brown, slightly damp	HHH	9926	7	43	1 1	<del></del>	<del></del>	<del> </del>	
									:	:	:	
<u>نو</u>					]							
e si					-	8		77777777				
oft						10 12			:			
ive	2.5				1							
icit Hicit												
Ë					1			<u> </u>				
Sein					1						<u>:</u>	
as		Defend to W	Boring terminated at 4 ft. eathered Rock and moderate Cementation					L				
eted	5	Refusal due to W	eathered Rock and moderate Cementation					L				
rpr									:	:	:	
ij									:	:		
ğ									:	:	:	
g d								: :	• • • • • • • • • • • • • • • • • • • •	:	:	
houl	7.5							F	:			
s pt	7.5							F				
gal												
This information pertains only to this boring and should not be interpreted as being indicitive of the site.												
is k												
to ‡												
only	10							<u> </u>				
ins												
erta												
d Ic								<u></u>				
nati								L				
for	12.5							L				
is ir								: :				
⊨								L				
								l				
	15											
									:	:		
								F			:	
								· · · · · · · · · · · · · · · · · · ·	····!····	:	:	
								F	• • • • • • • • • • • • • • • • • • • •			
								<b></b>				
	17.5							F		•••		
								<u> </u>				
									····!···	· · · <u> </u>		

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT NO.: _		9821	
l .		CLIENT: Shea Homes Limited Partnership									
{	(#ro/e/\_)	PROJECT LOCATION: 67th Avenue and Jor	nax R	oad							
		LOCATION: See Site Plan					_	ELEVATION:		AM	
LO	<b>G OF BORING</b>	DRILLER: D&S Drilling DRILLING METHOD: 6" Flight Auger					_ L	LOGGED BY:			10
	No. B19	DEPTH TO - WATER> INITIAL: \(\forall \)	ΔΕ	TFR 24	HOL	IRS:	•	CAVIN		2/23/201	19
	110. 15.15	DEI III TO - WATER MITTAE. =	_ ^'					TEST F			
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	LOOL	<u>13</u> ∃ Liquir	d Limit
(fe		Description		Gra	San	m g	× %	Water Content -			
0							0,	Penetration - /// 10 20		40 5	50
	(SM) Silty Sand w	ith Gravel, non-plastic, tan, slightly damp			9926	₿	27	<del></del>	<del>50</del>	<del></del>	:
									::	:	:
									::	:	:
								-····	::	:	:
2.5									:	:	:
								-····	:	:	:
								l : : : : : : : : : : : : : : : : : : :	:	:	:
								l i i	:	:	:
								F	:	:	:
5									:	:	:
	В	Boring terminated at 5 ft.  Jeathered Rock and strong Cementation						<u> </u>	:	:	:
	Refusal due to W	Veathered Rock and strong Cementation									:
										÷	<u> </u>
								<u>-</u>			<u>:</u>
7.5								<u> </u>			
,,,,											
									:		:
									:	:	:
									:	:	:
10										:	:
								<u> </u>			<u>:</u>
								L			<u>:</u>
								<u> </u>		. : 	<u>:</u>
12.5								L		<del>.</del> <del>.</del>	<u>.</u>
								<u> </u>			<u>:</u>
								<u></u>			<u>:</u>
								<u></u>			<u>.</u>
								<b>.</b>			<u>.</u>
15								÷ · · · · · · · · · · · · · · · · · · ·			į
								<b>.</b>			<u>.</u>
										. <b>.</b>	<u>.</u>
										. <b>.</b>	<u>:</u>
											<u>:</u>
17.5								<u> </u>			<u>:</u>
								<b> </b>			<u>:</u>
								<u> </u>		. <b>.</b>	<u>:</u>
				•							
1											

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership										
	( #roJe 🔨 )	PROJECT LOCATION: 67th Avenue and Jon	nax R	oad								
		LOCATION: See Site Plan						ELEVATIO				
م با	G OF BORING	DRILLER: D&S Drilling					_ เ	LOGGED E	Y: _		AM	
-0		BRIELING WETTIOD: 6 1 light Auger							DAT		12/23/2	2019
	No. B20	DEPTH TO - WATER> INITIAL: ₩	_ AF	TER 24	HOI	JRS:	<u>*</u>			ING>		
۲ (				<u>i</u>	<u>o</u>	_ &	8			RESU		
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Lim Water Cor			—∣ Lic	quid Limit
				Ō	ű	1 0	%	Penetratio			71	
0								10	20	30	40	50
	(SM) Silty Sand w	rith Gravel, non-plastic, tan, slightly damp						L				
								:	:	:	:	:
									:		:	:
	50 blows for :	5 inches on the second 6 inch interval				12 50			////	7777	7777	7
2.5												<b>/</b> /
2.5						1		<u> </u>	:	:	:	<del></del>
									· · <del>:</del> · · · ·		· · · <del>!</del> · · ·	
									· :	:	· · · <del>;</del> · · ·	:
	т	Daning tamasimatad at 4 ft			1							
	r Refus	Boring terminated at 4 ft. sal due to strong Cementation										
5								L				
								L	<u>:</u>		: : : : : : : : : : : : : : : : : : : :	
								:	:	:	:	:
7.5									:	:	:	:
								:	:	::::	:::::	:
									:	:	:	
									· ·			
										• • • • • • •		
10								<u> </u>	• • • • • • • •	]		
								ļ				
								ļ				
12.5								L	<del>.</del>			
								<b>L</b>	: <u>.</u>	:	:	
								L				
								:	:	:	:	:
								:	:	:	:	:
15									:			:
								····			:	
								<u> </u>	• • • • • •		• • • • • • • • • • • • • • • • • • • •	
								<u> </u>	• • • • • •	•••	• • • • • • •	
								<u> </u>	• • • • • • •			
								<b> </b>				
17.5								<b>-</b>				
								ļ	. <b>:</b>			
								<u></u>	. <b>.</b>			
	I			<u> </u>			_	<u> </u>	•	•	<u> </u>	

						_ F	PROJECT	NO.:		9821		
		CLIENT: Shea Homes Limited Partnership										
{	#ro/e/\\	PROJECT LOCATION: 67th Avenue and Jon	nax R	oad								
		LOCATION: See Site Plan						ELEVATIO				
lLo	<b>G OF BORING</b>	DRILLER: D&S Drilling					_ ١	LOGGED	_		AM	
-"	No. B21	DRILLING WILLINGD. 4 Tright Auger					_		-		12/30/2	2019
	NO. DZ I	DEPTH TO - WATER> INITIAL:   ✓	_ AF	TER 24	4 HOU	JRS:	_		•	ING>		
두요				. <u>2</u>	l e	> t	l g	DI4:- 1:-		T RESU		
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Lii Water Co			— Lic	quid Limit
				٥	S		%	Penetration			7	
0				nararar.	 19938	,	24	10	20	30	40	50
	(SM) Silty Sand w	rith Gravel, non-plastic, tan, slightly damp			19930		24					
									<u>.</u>			:
								<u> </u>	:			:
	50 blows for 4	4 inches on the second 6 inch interval				34 50						
2.5									<u> </u>	<u> </u>	<u> </u>	4
								:	:	:	:	:
								:	:	: : : : : : : : : : : : : : : : : : : :	:	:
								<u>-                                    </u>	• • • • • • • • • • • • • • • • • • • •			
								<u>:</u>				
	R	oring terminated at 4.5 ft			4			<u>-</u>	· · · <del>:</del> · · ·			
5	Refus	oring terminated at 4.5 ft. sal due to strong Cementation						L				
		C										
								<u> </u>		;		
								<u>.</u>		;		
7.5								<u> </u>	į	;		
								L	<u>:</u>			
									:		:	:
									:			
10								:	:	:::::	:::::	:
									• • • • • • • • • • • • • • • • • • • •			
									• • • • • • •			
									•••	• • • • • • • •	• • • • • • •	•••
								<u>-</u>				
12.5								L				
								ļ;				
									·			
									:			
15								:	<del>.</del>	;		
								L	<u>.</u>			
								:	:	:	:	:
								[ : : : : : : : : : : : : : : : : : : :	:			
								<u></u>	:	!		
17.5								<u> </u>	:	!	:	
17.5								F		!		
								<u> </u>				
1												

		PROJECT: Aloravita - Phases 3 & 4					F	PROJECT	NO.:	9	9821
		CLIENT: Shea Homes Limited Partnership									
[ {	( Pro a X )	PROJECT LOCATION: 67th Avenue and Jom	ax Ro	oad							
1 '		LOCATION: See Site Plan					E	LEVATIO	N:		
l	0.0000000000000000000000000000000000000	DOULED. Dec Datitions						OGGED E			 \M
ILO	G OF BORING	DRILLING METHOD: 6" Flight Auger									2/20/2019
	No. B22	DEPTH TO - WATER> INITIAL: ₹	ΔF	TFR 24	LHOII	RS .	•		CAVIN		
$\vdash$	IIO. DEL	DEI III 10 - WATER INITIAL. =	· ^'								
Ê ÷				Graphic	Sample No.	× tr	#200	Plastic Lin	TEST R		Liquid Limit
Depth (feet)		Description		irap	San No	Blow Counts	V	Water Cor			Liquia Ellilli
					0)		%	Penetratio			
0					0000		22	10	20 ;		40 50
	(SM) Silty Sand with	n Gravel, non-plastic, brown, slightly damp			9923		23	L <u>;</u>			<u>:</u> <u>:</u>
								:	:	:	: :
									:		<u> </u>
								-·····································	:	:	: : : : : : : : : : : : : : : : : : : :
											· <u>·</u> ·····
2.5								L <u>.</u>			
								<u> </u>		<u>.</u>	<u>.</u>
	B	oring terminated at 3 ft.  Yeathered Rock and strong Cementation						<u> </u>	<u>:</u>	<u>:</u>	<u>:</u>
	Refusal due to W	eathered Rock and strong Cementation		'				:	:	:	: :
								:	:	:	: :
5								<u></u>	:	:	: :
								<u></u>		:	÷ · · · · · ÷ · · · · · ·
										į	
										·	
									į	<u>.</u>	<u></u>
7.5								:	:	:	: :
									:	:	: :
									:	<b>:</b> · · · · ·	
10										<b>:</b>	.;
								<u>.</u>			<u>.</u>
								L <del>.</del>		:	<u> </u>
										:	
								:	:		:
12.5								<u> </u>	· · · (· · · · · · · · · · · · · · · ·	:	÷ · · · · · · · · · · · · · · · · · · ·
12.5								<u> </u>	<u>(</u>		÷
								<u> </u>			÷
								<u> </u>	į	· · · · ·	
								<b> </b>			÷
								<u> </u>	<u>.</u>	<u>:</u> :	<u>;</u>
15								L			
								:			
								·····	:		
									· · · · · · · · · · · · · · · · · · ·	:	
									· · • · · · · ·	•	÷ · · · · · · · · · · · · · · · · · · ·
$\vdash$								<u> </u>			ļ
17.5								<u> </u>	;	<u>.</u>	<u>.</u>
								<u> </u>	;	<b>:</b>	ii
								<u>[</u>			
								<u> </u>			
1											
1											

CLIENT: Shee Homes Limited Patronship   CAPTION: See Site Plan   COGED BY: AM			PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:		9821	
LOCATON: See Size   Man			CLIENT: Shea Homes Limited Partnership								
DRILLER   DESCRIPTION   DATE   Ligar   DATE   DAT	{	(#ro/e/X)		x Road							
No. B23    DRILLING METHOD: 6" Flight Auger   DATE: 12:20:2019							_				
No. B23  Description  Descripti	lLo	G OF BORING					_ ١	_			
Description  Descr	-"		DIVIDENTIAL OF THE HARDET	4 FT FD 0	4 1101	IDO:					<u>19</u>
Description  Descr	<u> </u>	NO. DZ3	DEPTH TO - WATER> INITIAL: #	AFTER 2	4 HOU	JKS:					
o (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp (SC-SM) Silty Clayey Silty Cla	モ			을	<u>용</u> .	s s ≥	lg				id Limit
o (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  (SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damped and Gravel, low plasticity, brown, damped and Gravel, low plasticity, damped and Gravel, low plasticity, brown, damped and Gravel, low plasticity, damped and Gravel, l	(fee		Description	jrap	<u>F</u> 8		#   v			Liqui	IG LITTI
SC-SM) Silty Clayey Sand and Gravel, low plasticity, brown, damp  22  2.5  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation  5  7.5  10  12.5  15  16  17  18  19  20  20  21  21  21  22  23  24  25  26  27  28  28  29  20  20  20  20  20  20  20  20  20					107		%	Penetration -		<b>Z</b>	
Boring terminated at 3.5 ft. Refusal due to Gravel and Cobbles and strong Cementation  7.5  12.5  13.5  14.7  15.5  15.5  16.7  17.5  18.7  19.7  19.7  10.7  10.7  11.7  11.7  12.7  13.7  14.7  15.7  15.7  16.7  17.7  18.7  19.7  19.7  10.7  10.7  10.7  10.7  11.7	0	(CC C) (C C)	0 1 10 11 1 2 2 1 1	- वस्तरा	19923	9	22	10 20	30	40 5	<u>50</u>
2.5  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation  7.5  12.5  13.3  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation		(SC-SM) Silty Clayey	Sand and Gravel, low plasticity, brown, damp		1	Ī		ļ <u>.</u>			
2.5  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation  7.5  12.5  13.3  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation					1			<u> </u>			<u>.</u>
2.5  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation  7.5  12.5  13.3  Boring terminated at 3.5 ft.  Refusal due to Gravel and Cobbles and strong Cementation					;	3					<u>:</u>
2.5 Boring terminated at 3.5 ft. Refusal due to Gravel and Cobbles and strong Cementation  5  7.5  12.5  15.5					1	3		<b>//</b> /			<u>:</u>
5 5 7,5 10 12.5 12.5	2.5				;						<u>:</u>
5 5 7,5 10 12.5 12.5					1						<u>:</u>
5 5 7,5 10 12.5 12.5					1			<u> </u>	:		<u>:</u>
5 5 7,5 10 12.5 12.5		Bofrant due to Occ	oring terminated at 3.5 ft.					<u> </u>			<u>:</u>
10		Refusal due to Gra	iver and Coodies and strong Cementation								<u>:</u>
12.5	5							<u> </u>		:	<u>:</u>
12.5											<u>:</u>
12.5								<u> </u>			<u>:</u>
12.5								L	;		<u>:</u>
12.5								L			<u>:</u>
12.5	7.5							L			
12.5									:	:	:
12.5										:	
12.5											:
12.5											
15	10								:	:	:
15										:	:
15								[ : :			
15										:	:
15										:	:
15	12.5								:	:	:
									:		:
									:	:	:
									:		
										:	:
	15										:
17.5									!	:	:
17.5									!		
17.5									!	:	:
17.5											:
	17.5							<u> </u>	· · · ! · · · ·	:	:
								<u> </u>	!	:	:
									!	:	:
								<u> </u>	!	;	÷ · · · · ·

						_ F	PROJECT NO.:	9821	
		CLIENT: Shea Homes Limited Partnership							
-	( #ro/e/\ )	PROJECT LOCATION: 67th Avenue and Jon	max R	oad					
		LOCATION: See Site Plan						ELEVATION:	
م با	G OF BORING	DRILLER: D&S Drilling					_ L	LOGGED BY:	
-0		DRILLING WETHOD. O Flight Auger							12/20/2019
	No. B24	DEPTH TO - WATER> INITIAL: ₩	_ AF	TER 24	HOL	JRS:	¥	CAVING	
ا د ر				. <u>2</u>	<u>e</u>	<u>~ ~</u>	8	TEST RES	SULTS
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	— Liquid Limit
				Ø	Ö	٥ [	%	Penetration -	7//2
0								10 20 30	40 50
	(SM) Silty Sand	with Gravel, non-plastic, brown, damp			19924	ľ	22		
								L	
									: :
						R 8			: :
2.5						10			: :
						1			: :
									: :
	F	Boring terminated at 4 ft.		11:1:1:1:1:	1				
	Refusal due to Gra	Boring terminated at 4 ft. avel and Cobbles and strong Cementation							
5									
								<u>-</u>	
								<u> </u>	
								<u> </u>	
7.5									
								L	
								<u></u>	
10									
								<u> </u>	
								<u>[</u>	
								L	
								L	
12.5								L	
									· · · · · · · · · · · · · · · · · · ·
15								<b>-</b>	
								· · · · · · · · · · · · · · · · · · ·	
								<u> </u>	
								<u> </u>	
								<u> </u>	
								<u> </u>	
17.5								<u> </u>	
								<u> </u>	
								ļ <u>i</u> i.	
				-	-				

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT N	O.: _		9821	
		CLIENT: Shea Homes Limited Partnership									
(	( #role 🔥 )	<b>PROJECT LOCATION:</b> 67th Avenue and Jomax	Road								
1		LOCATION: See Site Plan				_ [	ELEVATION	:			
م اا		DRILLER: D&S Drilling				_ ι	LOGGED BY	<b>/</b> :	1	AM	
۱۲O	G OF BORING	DRIEDING WETHOD: 6 1 light Auger					I	DATE:	: <u> </u>	2/20/20	)19
	No. B25	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	HOI	JRS:	<u>*</u>		CAVIN	ig> 🚊		
		•	o o	0		g	-	rest f	RESUL	TS	
Depth (feet)		Description	Graphic	Sample No.	Blow	< #200	Plastic Limit	:			id Limit
g €		Becompain	E	Sar	≖ි ගි	× %	Water Conte				
0						"	Penetration 10				50
	(SC) Clavey Sand with	h Gravel, low-medium plastiticy, light brown,	:7:7:7					<u>20</u> :	30	+0	<u> </u>
	(SC) Clayey Sand Wid	slightly damp	/////	1				<u>:</u>	• : • • • •		· <u> </u>
		ongmy damp	1.7.7.7	1							
				1			<u></u>	<b>:</b>	. :	<b>:</b>	. <u>:</u>
			7.7.7.7	1			L	<u>:</u>		<u>:</u>	. <u>:</u>
2.5			/////	1				:		:	
				1			:	:	:	:	:
			1///	1			Ī	<u>:</u>	:	:	<u>:</u>
				1			f:	:	::	:	:
	Т	Soring terminated at 4 ft	<u> </u>	1			F	<u>:</u>	::	:	· <del>.</del>
	Refusl due to W	Boring terminated at 4 ft.  Veathered Rock and strong Cementation					<b> </b>	<b>:</b>			. :
5		8					<u> </u>	<u>.</u>			
							=	<u>:</u>			
							<u>.</u>	:		<u>:</u>	. <u>:</u>
							:		:	:	
							:	:		:	:
7.5								:		:	:
7.5								÷ · · · ·			· :
								<u> </u>	• • • • • • • • • • • • • • • • • • • •	÷	
							<b>-</b>	<u>.</u>			
							<u>-</u>	<b>;</b>	.;	.;	
								<u>:</u>		. <u>.</u>	. į
10							<u>.</u>	<u>:</u>	:	:	: . :
									:		
										:	
								:			
									• ! • • • • •	:	
<b></b>							F	÷ · · · · ·		÷ · · · · ·	
12.5							F	į			
$\vdash$							<u> </u>	į			
							<b> </b>	<u>;</u>		.;	
							<b> </b>	<u>.</u>			
							<u> </u>	<u>:</u>		<u>:</u>	
15							<u> </u>				
							Γ				
							·····	:	::	:	
							<u> </u>	· · · · ·			
							F	<u> </u>	• ! • • • •		
$\vdash$							<u> </u>	<u>.</u>			
17.5							<u> </u>	<u> </u>			
							<u> </u>	<u>;</u>	.;	<u>:</u>	
							<u> </u>			:	
				<u> </u>	1		<u> </u>	•••••	• • • • • • • • • • • • • • • • • • • •	······	
1											

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO	:	98	821	
		CLIENT: Shea Homes Limited Partnership									
	ro e X	PROJECT LOCATION: 67th Avenue and Joma	x Road								
		LOCATION: See Site Plan				E	ELEVATION:				
ا ا		DDULED, Dec D 'II'				_ _ [	LOGGED BY:	,	Al	M	
	G OF BORING	DRILLING METHOD: 6" Flight Auger				_	D#	ATE:	12/	20/2019	,
	No. B26	DEPTH TO - WATER> INITIAL: ₩	AFTER 24	4 HOU	RS:	¥		AVING			
				1			TE	STRE	SULTS	<del></del>	_
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit				Limit
		Description	Ga	Sar	⊞ §	× %	Water Conten				
						0`	Penetration -		7777	n E0	
0	(SC) Clayey Sand with	h Gravel, low-medium plastiticy, tan, slightly		9924		33	10 20	30	0 40	<u>50</u>	
	(SC) Clayey Salid Will	damp	:/:/:/:/	1			:	:			
		dump	1777	1			ļi				
	50 1.1 £	5 in the second the first C in the internal	/////	1	N		: : : : : : : : : : : : : : : : : : :	<del></del>	<del>,,,,</del>	<del>7777</del>	
	50 blows for	5 inches on the first 6 inch interval	7.7.7.7	├	50			<u> </u>	<u> </u>		
2.5				1			L	:	:	· · · · · · · · · · · · · · · · · · ·	
			7.7.7.7	1			: :	:	:	:	
			7.7.7.	1			Ē : :	:	:	:	
			7.7.7.7	1			: :	:	:	:	
	F	Soring terminated at 4 ft	<u> </u>	1			·····	•••••		•••••	
H_	Refusal due	Boring terminated at 4 ft. to Weathered and Fractured Rock					<u></u>	:			
5							<u> </u>	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •		
·							<b>-</b>				
							ļi				
							<u></u>				
7.5							L	:			
								:	:	:	
)								:	:	:	
								:	:	:	
							F	•••••	• • • • • • • • • • • • • • • • • • • •		
10										•••••	
							F				
							<u></u>				
							L	:			
							ļ		;		
12.5							L				
							L				
								:	:	:	
								:	:	:	
15										•••••	
15							<u> </u>	• • • • • •	• • • • • • • •	•••••	
							<u></u>				
$\vdash$							<u> </u>	• • • • • •			
							ļ				
							L				
17.5							<u> </u>				
							<u>L</u>				
							L				
							<u>L</u>		:		
1											

			PROJECT: Aloravita - Phases 3 & 4					PROJECT	NO.: _		9821	
1			CLIENT: Shea Homes Limited Partnership									
	#role 🔥	1	PROJECT LOCATION: 67th Avenue and Joma	x Road								
			LOCATION: See Site Plan				_ [	ELEVATIO	N:			
ماا	C OE BOD!!	NIC	DRILLER: D&S Drilling				_ เ	LOGGED E	3Y:		AM	
	G OF BORII	NG	DRILLING METHOD: 6" Flight Auger						DATE	:1	2/20/201	.9
	No. B27		DEPTH TO - WATER> INITIAL:	AFTER 2	4 HOU	JRS:	<u>-</u>		CAVIN	VG> _C		
				U	0	T	g		TEST	RESUL	TS	
Depth (feet)			Description	Graphic	Sample No.	Blow	< #200	Plastic Lim			⊢ Liquic	J Limit
			Docompaien	👸	Sal	<u>"</u> 8	> %	Water Cor			,	
0					+			Penetratio 10				50
	(SC) Clavey Sand	d with	Gravel, low-medium plastiticy, light brown.	:7:7:7	7			<del>'</del>		:	: :	:
	()		slightly damp									:
												:
				/:///					<u>:</u>			: :
				<i>[//.</i> ]	:			<u>-</u>				: :
2.5								L				<u>:</u>
				7.7.7	:			<u> </u>	<b>:</b>		:::	<u>:</u>
				////				<b>L</b>	<u>:</u>	. <b>:</b>	: : :	<u>:</u>
				7.7.7	<u>/</u>				<u>:</u>	:	: :	
	5011	В	Boring terminated at 4 ft. eathered Rock and strong Cementation					:	:	:	: :	:
5	Refusi due	to W	eathered Rock and strong Cementation					[	:	:	:	:
								:	:	:	:	:
									:	::	:	:
											:	:
									:		:	:
									:			:
7.5								<b></b>	į			<u>:</u>
.												<u>:</u>
<b>'</b>								<b>-</b>	į			<u>.</u>
								ļ				: :
									į			: :
10								L	į	.; ;	.;;	: :
								<u> </u>				:
								:		:		:
								Ē				:
									:	:	: :	:
12.5												: :
12.5												:
												:
								<u> </u>	į			<u>.</u>
												<u>.</u>
$\blacksquare$					1			<u> </u>				<u>:</u>
15					1			<b></b>				: :
								: 			÷	: :
					1			L			<u>.</u> ;;	: :
					1			<u> </u>	į			<u>:</u> :
								L				
17.5								[ : : : : : : : : : : : : : : : : : : :	:			:
					1				:	::	: : :	:
								l : : : : :	:	::	:	:
								<u> </u>		• • • • • • • •		:·····
1												

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT N	<del>o.:</del> _		9821	
		CLIENT: Shea Homes Limited Partnership										
{	( Fro e 🔨 )	PROJECT LOCATION: 67th Avenue and Jon	max Ro	oad								
		LOCATION: See Site Plan					_ [	ELEVATION	:			
م با	G OF BORING	DRILLER: D&S Drilling					_ l	OGGED BY	<b>/</b> :	1	AM	
-0		DIVILLING WETHOD: O Tright Auger							DATE:		2/20/20	)19
	No. B28	DEPTH TO - WATER> INITIAL:	AF	TER 24	HOU	IRS:	<u>*</u>			<b>G</b> > _C		
۲ (				.≌	<u>e</u>	_ s	8			RESUL		
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Limit Water Conte			⊣ Liqu	ıid Limit
				Ō	ιχ	1 0	8	Penetration				
0				1 -1 -1 -1 -1								50
	(SM) Silty Sand	some Gravel, non-plastic, brown, damp						L	:			
								:	:	:	:	:
									:	:	:	:
									:		:	:
2.5								:	:	:	:	:
									: :		:	:
								<u> </u>	:	:	:	:
								t:	:	:	:	:
	ī	Boring terminated at 4 ft						<del></del>	<u>:</u>	• : • • • • •	:	· <u>:</u>
	Refusal due to Gr	Boring terminated at 4 ft. avel and Cobbles and strong Cementation						: :	:	:	:	
5								<u></u>	÷	• : • • • • •	÷	. :
									į			
								<u> </u>	<u>:</u>			. :
								<u> </u>	<u>:</u>		. <u>.</u>	
									<u>:</u>			. į
7.5									<u>:</u>	.;		. į
								<u> </u>	<u>:</u>	.;		
								L	<u>.</u>		<u>:</u>	
								<b> </b>				
									:	:	:	:
10									:	:		:
												:
								:	:	:	:	:
									÷····	:		:
12.5												
12.5									<u>:</u>		÷ · · · · ·	::
									<u> </u>	• ! • • • •		• 🗄 • • • • •
$\vdash$								<u> </u>	<u>.</u>	• • • • • • • • • • • • • • • • • • • •		· <u> </u>
								<u>-</u>				
15									<u>.</u>			
								ļ	<u>.</u>			
								<b> </b> ;	<u>.</u>			. <b>:</b>
								<u> </u>	<u>:</u>			. :
								<u> </u>	<u>;</u>	<b>:</b>	<u>.</u> ;	
17.5								L	<u>:</u>			
								<u></u>				
								[	:			
							<u> </u>	<u> </u>	<u> </u>	• ! • • • • •	-:	
1												
1												

1				PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT NO.:		9821
				CLIENT: Shea Homes Limited Partnership								
	{	(#ro∴e/\	<b>(</b> )	PROJECT LOCATION: 67th Avenue and Jor	nax R	oad						
				LOCATION: See Site Plan					_	ELEVATION: _		
	LO	G OF BO	<b>RING</b>	DRILLER: D&S Drilling					_ [	OGGED BY:		AM
		No. B29		DRILLING METHOD: 6" Flight Auger DEPTH TO - WATER> INITIAL: ♀		TED 2	LUOI	IDe.	_		E: ING> _	12/20/2019
		140. DZ3		DEPTH TO - WATER> INITIAL: *	_ Ar		HOU	IKS:	_			
	£ £					Graphic	를 .	× stc	% < #200	Plastic Limit	T RESU	LIS ─ Liquid Limit
	Depth (feet)			Description		) Srap	Sample No.	Blow Counts	¥*	Water Content -		, Liquid Limit
							ļ"		*			a
	0	(CNA) C:14	r. Cand aa	ma Cuerral man mlastic ton alightly dame						10 20	30	40 50
		(SM) SIII	y Sand so	me Gravel, non-plastic, tan, slightly damp								
ai.										<u></u>		
sit		50	blosse for	3 inches on the first 6 inch interval				R			: 77777	<del>; ; ;</del>
ţ		]	olows for	3 menes on the first o men mer var				50			· · · · · · · · · · · · · · · · · · ·	<u></u>
ve	2.5									<u> </u>		
diciti							-			ļ <u>.</u>		
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		Dafugal /	Educato Gra	Boring terminated at 3 ft. avel and Cobbles and strong Cementation						<u> </u>		<u> </u>
oei n		Refusar	auc to Gra	aver and coopies and strong cementation						<u> </u>		<u> </u>
as												<u> </u>
eted	5									<u> </u>		
erpr											;	
e int										<u> </u>	;	
ot p										<u> </u>		
삠										<u> </u>		
shot	7.5									L		
and												
ing												
bo											:	
this												
ly to	10										:	
s on											:	
tain										:	:	
ь Б												
atior												
or m	12.5											
s inf												
Ē										-·····································		
										<u></u>		
	15									<u></u>	:	: :
											:	: :
										<u>-                                    </u>	:	: ::
	17 -									<u> </u>		
	17.5									<u> </u>		

		PROJECT: Aloravita - Phases 3 & 4					F	PROJE	CT NO.	:	9	821	
		CLIENT: Shea Homes Limited Partnership											
I {	( A A X	PROJECT LOCATION: 67th Avenue and Jon	max R	oad									
1 '		LOCATION: See Site Plan					E	ELEVA	ΓΙΟN:				
I		DDULED. Dec D III						OGGE				.M	
LO	G OF BORING	DRILLING METHOD: 6" Flight Auger					_ •	-000_				/20/20]	10
	No. B30	DEPTH TO - WATER> INITIAL: \(\frac{1}{2}\)	Λ Ε	TED 2	I HOI	IDQ.	_				;> <u>C</u>		17
<u> </u>	110. 000	DEFINIO-WATER> INITIAL: =	_ ^	I LIX Z4	11100	I.S.							
E &				.)을	를 .	lts ∨	< #200	Plastic	I Limpit I	SIRE	SULT	Simui	al Linnit
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	¥   ∨		Content			Liqui	u Limii
				ا ن	S	0	%		ation -				
0								10	20	3(	0 4	0 5	50
	(GM) Silty Gra	vel, non-plastic, brown, slightly damp			9924	3	12	:	:	:		:	:
					1							· · · · · · · · · · · · · · · · · · ·	
									• • • • • • • • • • • • • • • • • • • •	• • • • • • •			:
								<u> </u>					<u>:</u>
	T	1.26		HAIR	1			<u> </u>				: :	<u>.</u>
2.5	Defused due to Gre	Boring terminated at 2 ft. avel and Cobbles and strong Cementation						<u> </u>	<b>.</b> .	:		: :	<u>:</u>
	Refusal due to Ora	aver and coopies and strong cementation						L	· · · · · · · · ·	:		:	:
								:	:	:		:	:
								:	:	:		:	:
										• • • • • • •		 :	:
									• • • • • • • • • • • • • • • • • • • •	:			<u>:</u>
5								<u> </u>				:	<u>:</u>
								<u></u> :	:	;		:	<u>:</u>
												:	<u>:</u>
									:	:			:
									:			:	:
7 -									:				:
7.5									• • • • • • • • • • • • • • • • • • • •	:		: :	÷ · · · ·
								<u></u>		:			<u>.</u>
								<u></u>				: :	<u>.</u>
													<u>.</u>
								<u>.</u>		:			:
10								:		:		:	
								:	:	:		:	:
								F·····:		• • • • • • • •			
									•••••	• • • • • • •		:	÷ · · · · ·
								<u> </u>					<u>.</u>
								<u> </u>		:		: :	<b>:</b>
12.5								L				: ;	: 
								:		:		:	
								[	:	:		:	:
										• • • • • • •			
									•••••	• • • • • • •		:	:····
15								ļ;				· :	<u>.</u>
													<u>.</u>
								<u> </u>					<u>:</u>
								:		:			
									:	• • • • • • • • • • • • • • • • • • • •		:	:
								<u> </u>	:	• • • • • • •		:	:
17.5								<u> </u>		[			<u> </u>
$\vdash$								ļ				:	<u>:</u>
								<u> </u>		:		: :	<u>.</u>
						1	_						
1													

ſ			PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT NO.:	9821
			CLIENT: Shea Homes Limited Partnership							
	{	(#ro/e/A)	PROJECT LOCATION: 67th Avenue and Jon	nax R	oad					
			LOCATION: See Site Plan					_ :	ELEVATION:	
	LO	<b>G OF BORING</b>	DRILLER: D&S Drilling					_ L	OGGED BY:	
		No. B31	DRILLING METHOD: 6" Flight Auger DEPTH TO - WATER> INITIAL:		TED 24	ног	IDG.	_	DATE: _ CAVING	
ŀ	1	140. D31	DEFINIO - WATER> INITIAL.	_ AI	Г	ПОС	I			
	를 ټ				Graphic	ble .	şt	% < #200	TEST RE	Liquid Limit
	Depth (feet)		Description		)rap	Sample No.	Blow Counts	\ \ \	Water Content - •	
ŀ						ļ		%	Penetration -	
ŀ	0	(CM) Gilty Cond	some Gravel, non-plastic, brown, damp			9924	ļ #	30	10 20 3	0 40 50
ŀ		(SIVI) SIITY SAIIU	some Graver, non-prastic, brown, damp							
نه										
ŝ									<u>-</u> :	
چّ ا										
ě.	2.5									
흕									ļ <u>.</u> i	
ğ		Refugal due to Gre	Boring terminated at 3 ft. avel and Cobbles and strong Cementation						ļ <u>.</u>	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		Refusal due to Gla	aver and coopies and strong cementation						<b>_</b>	
as										
eted	5									
erpr										
e int									<u> </u>	
ఠ									L	
틸									<u>[</u>	
shot	7.5									
ğ										
ing										
ρο										
this										
호	10									
s on										
tain										
<u>B</u>										
ig l										
ğ l	12.5									
Ĕ										
Ĕ										
ı										
ı										
ľ	15									
ŀ	15								<b></b>	
ŀ									L	
ŀ									<u> </u>	
ŀ									<u> </u>	
ŀ									<del> </del>	
ı	17.5									
ŀ									<u></u>	
l									<u> </u>	
- 1										

			PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO	.:	9821	
			CLIENT: Shea Homes Limited Partnership								
	{	(#ro/e/ <b>X</b> )	<b>PROJECT LOCATION:</b> 67th Avenue and Jon	nax Road							
			LOCATION: See Site Plan				_	ELEVATION:			
	10	G OF BORING	DRILLER: D&S Drilling				_ ۱	LOGGED BY:		AM	
			DIVICENTO METHOD: 4 Tright Auger							12/30/2019	9
		No. B32	DEPTH TO - WATER> INITIAL:	_ AFTER	24 HC	URS:	¥		AVING> _		
				<u>.c</u>	<u>o</u>	ø	8		ST RESU		
	Depth (feet)		Description	Graphic	Sample	Blow Counts	< #200	Plastic Limit		⊢ Liquid	l Limit
				Ĉ	j   0	ا م	8	Water Content Penetration -		73	
	0							10 20		<sup>2</sup> 40 50	0
		(SM) Silty San	d and Gravel, non-plastic, brown, damp		1 993	88	17	: :	:		
<u>ię</u>								:	: : : : : : : : : : : : : : : : : : : :	: : :	
s at								· · · · · · · · · · · · · · · · · · ·			
of∄								F			
tive	2.5							F			
dici								<u> </u>			
i g								ļ <del>.</del>			
This information pertains only to this boring and should not be interpreted as being indicitive of the site.								ļ			
as		Refusal due to Gr	Boring terminated at 4 ft. ravel and Cobbles and strong Cementation					ļ	:		
etec	5	recrusur due to Gr	aver and coopers and strong commentation					<u> </u>			
erpi											
e int											
ot p								L			
밀											
ihou	7.5								:		
pu								: :	:		
ng a									:		
bori											
this								F÷			
to 1											
o I	10							F·····:			
ains								<u></u>	• • • • • • • • • • • • • • • • • • • •		
oert?								ļ			
ioi											
mat								<u> </u>			
uţo	12.5							<u> </u>			
hisi								ļ;			
١								ļ			
								; ;			
								<u> </u>	· · · · · · · · · · · · · · · · · · ·		
	15							<u> </u>			
								<u>[</u>			
								L			
									:		
								[ :	:		
	17.5							[ : : : : : : : : : : : : : : : : : : :			
								F:	:		
								h			
								<u> </u>		<u></u>	

			PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:	9821
			CLIENT: Shea Homes Limited Partnership						
	4	( To e X )	PROJECT LOCATION: 67th Avenue and Jomas	Road					
			LOCATION: See Site Plan					ELEVATION:	
	. ^		DRILLER: D&S Drilling					LOGGED BY:	AM
	LU	G OF BORING	DRILLING METHOD: 4" Flight Auger					DATE:	12/30/2019
		No. B33	DEPTH TO - WATER> INITIAL: ♀	AFTER 2	24 HO	URS:	*	CAVING	3> <u>C</u>
			•			Ι	То	TEST RI	ESULTS
	Depth (feet)		Description	Graphic	Sample	Blow	< #200	Plastic Limit	Liquid Limit
	ଅ କ		Везеприон	l g	Sar	ق ॼ `	× %	1	
	0						+	Penetration - 7/1/2 10 20 3	60 40 50
	U	(SM) Silty Sand	with Gravel, non-plastic, brown, damp		9938	39	24	10 20 3	<u> </u>
		(Sivi) Sincy Sund	with Graver, non-plastic, grown, damp						
ai.									
siţ		50 hlarva for	5 inches on the first 5 inch interval		‼—	N		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	: : : : : : : : : : : : : : : : : : :
ţ		50 blows for	3 inches on the first 3 inch interval		⊫—	50			
/e o	2.5								: : :
ic iţi								L	: : : : : : : : : : : : : : : : : : :
ind						1			
eing									
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		1							
ed a	5	В	oring terminated at 4.5 ft.	11111111	4				
pret	5	Refusal due to Weather	oring terminated at 4.5 ft. ed and Fractured Rock and strong Cementatio	n					
nter									[
Б Б		-							
ğ								ļ	
밁		-							
ş	7.5							L	<u> </u>
and									
ing								L	:
ᅙ									
ţ									
₹ to	10								
s on									
tains									
Pe.		-							<u> </u>
ţi									
rma		-							[·····]
info	12.5							<u> </u>	
his		-							[ <u>[</u>
٦		-						ļ;;;	;;;
									ļ
	15							: : : :	
		1							: : : : : : : : : : : : : : : : : : : :
						1			
	17 -	1						<u> </u>	
	17.5	-				1		F	
		-						<u> </u>	
						<u> </u>	L	<u> </u>	<u> </u>

		PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:		9821
		CLIENT: Shea Homes Limited Partnership							
{		PROJECT LOCATION: 67th Avenue and Jomax	Road						
1		LOCATION: See Site Plan					ELEVATION:		
I		DDILLED. Deg D. H.				_	LOGGED BY:		AM
<b> LO</b>	<b>G OF BORING</b>	DRILLING METHOD: 4" Flight Auger				_ '	_		12/30/2019
	No. B34	DEPTH TO - WATER> INITIAL: ♀	AFTED 1	24 HOI	IDQ.	•		/ING>	
<u> </u>	110. 007	DEFINIO-WATER INITIAL.	T	1	JK3.				
문 <del>유</del>			을	<u>e</u>	× l	< #200	Plastic Limit	TRESU	LIS
Depth (feet)		Description	Graphic	Sample	Blow	¥   v	Water Content	- •	
			ا ن	S	0	%	I	- • [//////	<b>a</b>
0							10 20	30	40 50
	(SP-SM) Silty San	d with Gravel, non-plastic, brown, damp	11:1:1:1:	9939	PΦ	10	: :	:	: :
			rati						
	50 blows for	6 inches on the first 6 inch interval	1934 ) (1976 )	· 1	N		//////////////////////////////////////	<del>'////</del> /	<del>, ; , , , ;</del>
	50 010 WS 101	o menes on the first o men men var	:1:1:1:1:		50		//////////	<u>////</u>	<u>/////</u>
2.5			Tarri	2 21			<u></u>		<u>:</u> <u>:</u>
			9 9 1 6 1 1 10 6 1	· 1					: :
	В	foring terminated at 3 ft. ed and Fractured Rock and strong Cementation						:	: :
	Refusal due to Weathere	ed and Fractured Rock and strong Cementation	n   '						
								· · · · <del>.</del> · · ·	
5							<b>-</b>		
							<b>-</b>		
							<u> </u>		
							: :	÷	: :
							[ : : : : : : : : : : : : : : : : : : :		: :
7 -									
7.5							<u> </u>		
							<u> </u>		
							ļ	;	
							<u> </u>		
							L		<u> </u>
10								:	
								• • • • • • • • • • • • • • • • • • • •	
							<u> </u>		
							<u></u>		
12.5							L		
							L		
					1	1			
					1				
							F·····································		
							<u> </u>		
15									
							ļ		
					1	1	L		
					1	1	L		
								:	: : : : : : : : : : : : : : : : : : : :
17 =							F : : : : : : : : : : : : : : : : : : :		
17.5							F		
					1	1	<u> </u>		
					1		ļ		
	•		•	•	•	•	•		
1									

				PROJECT: Aloravita - Phases 3						PROJECT	۱O.: _		9821	
				CLIENT: Shea Homes Limited F										
	{	#role /	)	PROJECT LOCATION: 67th A	venue and Jomax R	Road								
				LOCATION: See Site Plan					_	ELEVATIO				
	10	G OF BOR	ING	DRILLER: D&S Drilling					_ l	OGGED B	_		AM	
				DRILLING METHOD: 4" Flight							DATE		2/30/20	019
		No. B35		DEPTH TO - WATER> INITIAL	_: ऱ् <sup>_</sup> AF	FTER 24	HOU	RS:	_			NG> _		
	도요					.ie	<u>e</u>	> t	g			RESUL		.1.11.1
	Depth (feet)			Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Lim Water Con			⊣ Liqi	JIQ LIMIT
						٥	S		%	Penetration				
	0	(	5 014	~			9939 <sup>.</sup>		9	10	20	30	40	50
		(GM	l) Sılty	Gravel, non-plastic, brown, da	ımp		3333			<u></u>				
										<u> </u>				
site										<u> </u>	<u>.</u>		<u>:</u>	<u>:</u>
the								8 9 9			]		<u>:</u>	:
/e o	2.5							9			<u>:</u>	. <b>:</b>	:	:
iciti						TAB					<u>.</u>		:	:
ind										L				:
eing										:	:	:	:	:
as b											:	:	:	:
ted	5									:	:	:	:	
rpre		Soil	transit	ions to light brown, slightly da	mp		99392	28	12		////			78→
inte		50 blov	vs for 4	ions to light brown, slightly da inches on the second 6 inch in	nterval			50						
t be											:	:	:	<u>.</u>
g											:	:::::::	:	:
hou	7.5									-·····································	:	:	:	:
nd s	7.0										:	:	:	:
ng a														
bori										 :	:			
this			Е	oring terminated at 9 ft.									:	
y to	10	Refusal due to	highly	oring terminated at 9 ft. Weathered Rock and moderate	e Cementation						:		:	:
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	10									<u></u>	:	:	· . · · · ·	:
ains										-····· :	:		:	:
per											• • • • • • •			
tion										F	:	!	:	:
sr ma	12.5									<u>-</u>	:	!		
infe	12.5									<u> </u>	:		::····	
This											• • • • • • •			
											:			
											:	· · <u>!</u> · · · · ·	:	• • • • • • • • • • • • • • • • • • • •
											• • • • • • •			• • • • • • • • • • • • • • • • • • • •
	15													
										<u> </u>				
										<u> </u>	• • • • • •	· • • • • • • • • • • • • • • • • • • •		
										<u>-</u>	• • • • • •	· · [· · · · ·		• • • • • • • • • • • • • • • • • • • •
										<u> </u>				
	17.5									<u> </u>		[		
										<u> </u>		· : ! · · · · ·	÷	
									L	<u> </u>		· · <u> </u>	·	· <u>:</u> · · · · · ·
									_					

ſ				PROJECT: Aloravita - Phases 3 & 4				F	PROJECT N	IO.: _	9	9821	
- 1				CLIENT: Shea Homes Limited Partnership									
J	4	( #ro/e	9 <b>/</b> (()	PROJECT LOCATION: 67th Avenue and Jomax	Road								
				LOCATION: See Site Plan				_	ELEVATION				
	IO	GOF	BORING	DRILLER: D&S Drilling				_ L	LOGGED B			ΔM	
	LU			DRILLING METHOD: 4" Flight Auger						DATE:		2/30/2019	
ı		No. E	336	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	4 HOL	JRS:	<u>¥</u>		CAVIN			
	٠.				<u>.0</u>	<u>o</u>		8		TEST R	ESULT	S	
	Depth (feet)			Description	Graphic	Sample No.	Blow	% < #200	Plastic Limi			Liquid	Limit
					ত ত	ကြိ	ا ۵	%	Water Cont Penetration				
ı	0											40 50	)
- 1		(SC) Claye	ey Sand and Gr	ravel, low-medium plastiticy, tan, slightly dan	1p///				:	:	:		
ı						1					:	: :	
نو						1				:	:	: : : :	
e s			50 blows for	5 inches on the first 6 inch interval		$\vdash$	N		///////	<del>.</del> 7777	: 7777	7777	
⇟							50		<del>/. / . / . / . / . / . / . / . / . / . </del>	<del>. <u> </u></del>	<del>/././.</del>	<del></del>	
ţi	2.5					1			F <del>.</del>	. <u>:</u>	<u>:</u>	<u>.</u> <u>.</u>	
gi.									<u> </u>	. <del>.</del>	<u>.</u>	<u>:</u>	
ig i						1			<u> </u>	. :	<u>:</u>	<u>.</u> <u></u>	
be i					/:/:/:	4			ļ	: :	:	<u>.</u>	
as		Dofusal	B Baye to bighly	Foring terminated at 4 ft.  Weathered Rock and moderate Cementation						. <u>:</u>	<u>:</u>	<u>.</u>	
eted	5	Kerusai	due to inginy	weathered Rock and moderate Cementation					<u>:</u>	: 	:	<u> </u>	
ğ									L	. <u>:</u>	:	<u>:</u>	
ξ													
풀										:	:		
ğ										:	:		
ᅙ	7.5										:		
g s	7.0							:	:	}····			
ng a									·····		:	::	
ğ										. :	:	} !	
his										. :	:	::	
ā										· :	· · · · · ·	} · · · · ÷	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	10								<u> </u>			} <u>-</u> -	
ins									<u>-</u>			} <u>-</u>	
erta												<u> </u>	
<u>ا</u>									<u>-</u>			} <u>}</u> -	
mati									ļ	· <u> </u>	· · · · · ·	<u> </u>	
훁	12.5								L			ļ	
isi									<u>.</u>	: . ;	:	<u>.</u>	
╒╽									<u> </u>			<u>.</u>	
									<u>.</u>	. ;	<b>:</b>	<u> </u>	
									l	<u>:</u>			
	15								L				
										:	:		
									:				
- [									<u> </u>	:	:	: · · · · · · · · · · · · · · · · · · ·	
									F	· · · · · · · · · · · · · · · · · · ·	:	:	
١	17 -								<u> </u>	. :	:		
	17.5								F · · · · · ·			} · · · · · !	
J									<u> </u>		<u>.</u>	<u> </u>	
J							<u>L</u>	L	<u> </u>	<u> </u>	<u>:</u>	<u>:</u>	· · · · ·
ſ													

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT N	0.:	9	821	
		CLIENT: Shea Homes Limited Partnership				_					
{	( A CONTRACT OF THE CONTRACT O	PROJECT LOCATION: 67th Avenue and Jomas	k Road								
'		LOCATION: See Site Plan				E	ELEVATION	:			
l. 🕳		DOULED, DAGD III					LOGGED BY			M	
LO	G OF BORING	DRILLING METHOD: 4" Flight Auger								/30/201	 19
	No. B37	DEPTH TO - WATER> INITIAL: ♀	ΔFTFR 2	4 HOI	IRS:	_		CAVING			
	110. 507	DEL TITO WATER MITTALE :									
돌 g			Graphic	Sample No.	≥ tc	< #200	Plastic Limit	ΓEST R			d Limit
Depth (feet)		Description	jap	E 2	Blow Counts	<del>     </del>	Water Conte			Liquit	G E
				0,		%	Penetration				
0				 19939		25	10 :	20 3	80 4	10 5	50
	(SC) Clayey Sand and	Gravel, low-medium plastiticy, brown, damp		19939	ľ	25		<u>:</u>		· ·	
			////	1			:	:	:	:	:
			/////	1				:	:		:
			7.7.7	1			:	:	:	:	:
				1				<u>:</u>	: :	:	<u>:</u>
2.5				1			<u> </u>	<u>:</u>	<b>:</b>		<u>:</u>
			777				<u> </u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>
			\;\;\;\;\;\;\;\;\;\;\;\;\;\;\;\;\;\;\;	1			<u> </u>	:	:	:	:
			[////;				L	:	:	:	:
			/////	1			:	:	:	:	:
5			7777	1			:	:	:	:	:
	P	Soring terminated at 5 ft	1.4.4.	1				:	: :	:	:
	Refusal due to highly	Boring terminated at 5 ft. Weathered Rock and moderate Cementation						÷ · · · · ·	:	: · · · · ·	÷ · · · · ·
	C .							<u>:</u>	: :	<u>:</u>	<u>:</u>
							<u> </u>	<b>:</b>	: :	<b>:</b>	<b>:</b>
								<u>:</u>	: :	:	<u>:</u>
7.5							:	:	:	:	:
								:	:	:	:
							:	:	:	:	:
								:	: :	: :	:
								÷ · · · · · ·	:	:	
								<u>.</u>	<u>.</u>		<u>.</u>
10								<u>:</u>		·	<u>.</u>
							<u> </u>	<u>:</u>	: :	: :	<u>.</u>
								<u>:</u> 	: :	: }	<u>.</u>
								<u>.</u>	: : :		<u>:</u>
									:	:	
12.5				1			[ : : : : : : : : : : : : : : : : : : :	:	:	:	:
							F	:		:	
							F	÷ · · · · ·	<u>:</u>	<b>:</b> · · · · · ·	÷····
							<u> </u>	<u>:</u>		· · · · · ·	<u> </u>
							ļ	<u>:</u>		· 	<u>.</u>
							ļ	<u>:</u>	: ! · · · · · ·	: :	
15							L	<u>;</u>	: ;	: 5	<u>.</u>
							<u> </u>				
							[	:	:	:	:
							F	:	: · · · · · · · · · · · · · · · · · · ·	:	:
							f:	:·····	:	:	:
							<b>-</b>	<u>.</u>			<u> </u>
17.5							F	<u> </u>	<u>.</u>	<u>;</u>	<u>.</u>
							<u> </u>	<u>:</u>	:	: :	<u>:</u>
							L	:	:	<b>:</b>	<u>:</u>
$\vdash$				1	<u> </u>	<u> </u>	<u> </u>				-

		PROJECT: Aloravita - Phases 3 & 4				_ F	ROJEC	T NO.	:	982	1
		CLIENT: Shea Homes Limited Partnership									
(	TroleX)	PROJECT LOCATION: 67th Avenue and Joma	x Road								
		LOCATION: See Site Plan				_ E	LEVAT	ION:			
م با	C OE BODING	DRILLER: D&S Drilling				_ L	.OGGE	BY:		AM	
	G OF BORING	Brazilio METTOB. 4 Tright Plager						_ DA	TE: _	12/30	/2019
	No. B38	DEPTH TO - WATER> INITIAL: ♀	AFTER 2	4 HOL	JRS:	<u>*</u>		_ CA	VING:	<u> </u>	
		•	o	lω	<i>(</i> 0	8				SULTS	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200				<b>-</b> - ∟	iquid Limit
ے ت		'	5	Sa	" 8	> %	Water C		- •	77771	
0							Penetra 10		30	40	50
	(SC) Clayey Sand wit	h Gravel, low-medium plastiticy, brown, damp	0 ////	9939	<del> </del>	34	:	· · · · · · ·	:	1	:
			////								
			<i></i>				-·····································	:	:::	:	:
			7.7.7					• • • • • • •	•••••		
				}							
2.5			////	1			:	:	:		
								· · · · <del>:</del> · ·	• • • • • • • • • • • • • • • • • • • •		
			////	1							
5				4							
	Defugal due to highly	Boring terminated at 5 ft.  y Weathered Rock and moderate Cementation					=				
	Refusal due to inging	weathered Rock and moderate Cementation									
							L		:		
							:				:
7.5											:
									:	:	:
									• • • • • • • • •		
10											
10											
									••••	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •
12.5							<u> </u>				
							ļ <del>.</del> .				
							<u>.</u> ;				
							<u>.</u>				
							<u></u>				
15											
							:				:
							:		:		
									:	:	:
17 =							L				
17.5							<u> </u>				
									• • • • • • • • • • • • • • • • • • • •		
											<u> </u>
1											

				PROJECT: Aloravita - Phases 3 & 4				1	PROJECT NO	:	9821	
1				CLIENT: Shea Homes Limited Partnership								
	{	Fo e	<b>3X</b> ( )	PROJECT LOCATION: 67th Avenue and Joma	x Road							
				LOCATION: See Site Plan				ı	ELEVATION:			
	. ^			DRILLER: D&S Drilling				_ ı	LOGGED BY:		AM	
	LO		BORING	DRILLING METHOD: 4" Flight Auger				_		TE:	12/30/	2019
		No. E	339	DEPTH TO - WATER> INITIAL: ♀		HOL	JRS:	¥		AVING>		
										ST RESU		
	Depth (feet)			Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit			quid Limit
	<u>a</u> <del>a</del>			Description	<u>a</u>	San N	m g	× %	Water Conten	t - •		
	_							<u>°</u>	Penetration -			50
	0		(CM) Silty (	Gravel, low plasticity, brown, damp	<b>91.</b>	9939	<u> </u> 5	14	10 20	30	40	<u>50</u>
			(OM) Sitty C	oraver, row prasticity, brown, damp								
4:									ļ <u>.</u>			
site									<u></u> .	:		
the									<u> </u>			
e of	2.5										:	:
citi									[ : : :	:	:	:
This information pertains only to this boring and should not be interpreted as being indicitive of the site.						ł				:	:	
ing										:	:	:
s be						1						
ig g	_								<u> </u>		:	:
rete	5		D	aring terminated at 5 ft		1				:		
Iterp		Refusal	due to highly	oring terminated at 5 ft. Weathered Rock and moderate Cementation					ļ			
ĕ		1101000							ļ			
뒇									L			
PI												
shot	7.5								L i i			:
nd and						:						
ng										:		:
por												
this									F			
, to												
lo l	10								<u> </u>	• • • • • • • • • • • • • • • • • • • •	• • • • • • •	
ins									<u></u>			
erta												
e l												
nati									ļi		;	
forr	12.5								L			
isi									L			
f										:		
	15											
	15								<u> </u>			
									ļ			
									ļ			
									L			
	17.5								Li			
									L			
											:	: : : : : : : : : : : : : : : : : : : :
									<u> </u>			

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:	9821
		CLIENT: Shea Homes Limited Partnership						
- {	(FoleX)	PROJECT LOCATION: 67th Avenue and Joma:	x Road					
		LOCATION: See Site Plan				E	ELEVATION:	
ا ا		DRILLER: D&S Drilling				_ 	LOGGED BY:	AM
ILO	G OF BORING	DRILLING METHOD: 4" Flight Auger				_	DATE:	12/30/2019
	No. B40	DEPTH TO - WATER> INITIAL: ₩	AFTER 2	4 HO	JRS:	¥	CAVING	
				T			TEST RE	ESULTS
Depth (feet)		Description	Graphic	Sample No.	Blow	< #200	Plastic Limit	
De (fe		Description	Ga	San	m z	× %	Water Content - •	
				+		_	Penetration -	7///
0	(GC) Clayay Gray	vel, low-medium plasticity, brown, damp	775	9939	96	15	10 20 3	0 40 50
	(GC) Clayey Glav	rer, row-medium prasticity, brown, damp					:	
				7			ļ	
							<u> </u>	<u>.</u>
							L	
2.5								
			2.42					: :
							: : :	: :
							:	
5		5	-7' × # /	9939	, l	32	<del> </del>	<b></b>
	(SC) Clayey Sand with	Gravel, low-medium plastiticy, brown, damp	777			-	:	
								<u>.</u>
								: :
			////					
7.5			////					
								: :
			<i></i>					
				<u> </u>				
10								
			7.7.7				<u></u> :	
		11-	13 4 4 4 1	9939		33	ļ	
	(SC-SM) Silty Clayey	Sand with Gravel, low plasticity, light brown	, 1994	19938	"	33	L	
		damp		1				
12.5								
				;				
							<u></u>	
				•				
15	D		MMM	4				
	В	oring terminated at 15 ft.		1			ļ	
				1			<b>.</b>	
							L	
17.5							[ : : : : : : : : : : : : : : : : : : :	
				1			F·····:	
				1				
							<u> </u>	

			PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT	NO.:		9821	
			CLIENT: Shea Homes Limited Partnership									
	(	#ro∫e <b>X</b>	<b>PROJECT LOCATION:</b> 67th Avenue and Jon	nax Road								
			LOCATION: See Site Plan				_ [	ELEVATIO	N:			
	10		DRILLER: D&S Drilling				_ [	LOGGED E	3Y: _		AM	
	LU	G OF BORING	DRILLING METHOD: 4" Flight Auger						DATE	E: 1	2/30/2	2019
		No. B41	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	4 HOL	JRS:	¥			NG> _		
					Г					RESUL		
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Lim		T.LOOL		quid Limit
	(fe G		Description	ja l	San	풀링	V	Water Cor		•		
					ļ"_		<u>~</u>	Penetratio			1	
	0	(0.0) 01 0		72/27	19939	6	23	10	20	30	40	50
		(GC) Clayey Grav	vel, low-medium plasticity, brown, damp			ľ l	20					
					1			L				
site.								:	÷	:	÷	:
i.					1				:			:
ē	`				1			:	:	:::::::	:	:
itive	2.5				1			F	· · <del>.</del> · · · ·		· : <u>:</u> · · ·	
gic		т	Paring terminated at 2 ft	- F.Z\\	1				· · <del>:</del> · · · ·		· - <del>:</del> · · ·	
ig i		Refusal due to Gr	Boring terminated at 3 ft. avel and Cobbles and strong Cementation					<u> </u>				
bei		restabli due to on	and cooles and strong commentation					ļ	<u>:</u>	<b>:</b>	<b>:</b>	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.								<u></u>				
ted	5							:	:	:	÷	:
rpre								:	:			:
inte												:
g												
рф									‡			
ping												
shc	7.5							L	į	;	<u>.</u>	
and									į			
ing												:
ρο												
this									:	:	:	:
ţ									:			
盲	10								• • • • • • • •	••••••	• • • • • •	
ins												
erta											;	
ᇊ												
ıatic								L	;		:	
orn	12.5											:
ᆵ									:		:	:
Ë												
								·····:	· · (· · · · · · · · · · · · · · · · ·	!		
								<u> </u>				
								<u></u>				
	15							<u> </u>				
								<u></u>	<del>.</del>			
J								L				
								[	:	::::::	:	:
								:	:	!	:	:
								<u> </u>				
	17.5							<u> </u>				
								ļ				
								<u> </u>				
				I			_	<u> </u>				

		PROJECT: Aloravita - Phases 3 & 4				I	PROJECT N	IO.: ˌ		9821	
		CLIENT: Shea Homes Limited Partnership									
{	(FoeX)	PROJECT LOCATION: 67th Avenue and Jomax	Road								
		LOCATION: See Site Plan					ELEVATION	J:			
l. ~		BRULES, DAGE W				_	LOGGED B			AM	
ILO	G OF BORING	DRILLING METHOD: 4" Flight Auger						DATE		12/30/20	019
	No. B42		FTER 24	1 HOL	JRS:	<u>*</u>			NG>		
		<u> </u>	т —	1					RESUL		
뒺쉾		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limi				uid Limit
Depth (feet)		Description	Jag	San	ĕ 8	V	Water Cont			,	
			1 -	ļ" <u> </u>	Ľ.	%	Penetration				
0			7.7.7.	9940	Ι.	22	10	20	30	40	50
	(SC) Clayey Sand and	Gravel, low-medium plastiticy, brown, damp		19940	ľ						
			/:/://	1							
				1			:	:	:	:	:
			17/7	1			:	:	:	:	:
				1			-·····································			• • • • • • •	:
2.5			7.7.7.7	1				· <del>:</del> · · · ·			
	т	2.6	<u> </u>	1			<u>-</u>				
	Pefusal due to Gr	Boring terminated at 3 ft. avel and Cobbles and strong Cementation					<u></u>	. :	:		. :
	Refusal due to Off	aver and coopies and strong comentation					<u>.</u>	. <u>:</u>			. :
							:	:	:	:	:
5							:	:	:	:	:
							:	:	:	:	:
								. :			. :
								• 🗄 • • •	• • • • • • •		• 🔅 • • • • •
							<u>-</u>				
							L;	. :		:	. :
7.5							L	. į			
							L	. <u>:</u>			. :
)							:			:	:
							:				
								. :			• • • • • • • •
								. :			. :
10								. :			
							<u>-</u>				
								. ;		;	
•							<u>.</u>	. į			
							L	. ;			
12.5									:	:	
								:	:::::::	:	:
							······				. :
								• 🗄 • • • •	• • • • • • • • • • • • • • • • • • • •	• :	:
							<u>-</u>				
								· :- · · ·			
15							<u>.</u>				
							L	. <b>.</b>	;		
							:	:	:	:	:
							[ :	:	:	:	:
							F		:::::::	:	:
							<u> </u>				
17.5							<u> </u>				
							<u> </u>				
							ļ	. <u>;</u>			
			1				<u> </u>	•	•	·	•

				PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:		9821	
		/ <b>*****</b>		CLIENT: Shea Homes Limited Partnership								
	{	Øro∑e.	<b>X</b> ( )	PROJECT LOCATION: 67th Avenue and Jon	max Road							
				LOCATION: See Site Plan				_ ī	ELEVATION:			
	. ^	$\sim$ $\sim$ $\sim$		BBU LEB- DAG D W				_	LOGGED BY:		AM	
	LO	G OF B		DRILLING METHOD: 4" Flight Auger				_			12/30/2	2019
		No. B	43	DEPTH TO - WATER> INITIAL: ₩	AFTER 2	4 HOL	JRS:	¥		VING>		
						т —				ST RESU		
	Depth (feet)			Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit			uid Limit
	<u>a</u> <del>a</del>			Description	G	San	ක් <u>ල</u> ්	× %	Water Content			
						<u> </u>		0	Penetration -			
	0	(00)	C1 C	vel, low-medium plasticity, brown, damp	75/0/2	19940	ļ	34	10 20	30	40	<u>50</u>
		(GC)	Clayey Grav	ver, row-medium prasticity, brown, damp					ļi			
						1				;	<del>.</del>	
site												<u> </u>
the		50	0 blows for 2	2 inches on the second 6 inch interval		1	17 50				4//.	
o e	2.5					<del>-</del>			/////////	<u> </u>	<u> </u>	<u> </u>
This information pertains only to this boring and should not be interpreted as being indicitive of the site.								1	T	:	:	· · · · · · · · · · · · · · · · · · ·
텔			F	Soring terminated at 3 ft	F7 (7	Ť		1	F :	:	:::::::::::::::::::::::::::::::::::::::	
ī [		Refus	sal due to Gra	Boring terminated at 3 ft. avel and Cobbles and strong Cementation				1	<u> </u>	:		‡
þei				C					ļ <u>i</u> i.		· <del>.</del>	
as									<u> </u>	:		:
etec	5								<u></u>			
erpr									L			
ij												:
t be									i :		:	
립											:	
no									F			
d s	7.5										$\cdot \div \cdot \cdot \cdot$	
g an									ļ			
ř									ļ <u>.</u>			
s pc									ļ			į
ţ												
ly t	10									:	:	:
s on											:	
ain									: :	:	:	:
bец											:	
ioi											**	
mat									<u> </u>			
턀	12.5								L			
isi									ļ			
F									: :			
									lii.			
									: :	:	:	:
	15											
	15								<u> </u>	• • • • • • • • • • • • • • • • • • • •	$\cdot : \vdots \cdot \cdot \cdot$	• • • • • • • • • • • • • • • • • • • •
									<u> </u>			
								1	ļ			
									ļ			
	17.5								L			
								1				
										:	:::::::	:
						1		_		:	• • • • • • •	

				PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT	NO.:		9821	
				CLIENT: Shea Homes Limited Partnership										
	4	( #rol	/e <b>Ж</b> )	<b>PROJECT LOCATION:</b> 67th Avenue and Jo	omax R	oad								
				LOCATION: See Site Plan					_ E	ELEVATIO	N:			
	I O	G OF	BORING	DRILLER: D&S Drilling					_ L	OGGED I	_		AM	
	LO			DRILLING WETHOD. 4 Tright Auger							DAT		12/30/2	019
		No.	B44	DEPTH TO - WATER> INITIAL:	AF	TER 24	HOU	IRS:	<u>—</u>		CAV	NG> _	<u> </u>	
	_					ပ	ø	. φ	8		TEST	RESU	LTS	
	Depth (feet)			Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Lin			⊢ Liq	uid Limit
				·		ō	တို _	8 "ا	%	Water Cor Penetration		•	73	
	0									10	20	30	⊿ 40	50
			(GM) Silty	Gravel, non-plastic, brown, damp			9940:	}	16	:	:	:	:	:
											:	:	:	
je.										<u></u>	:	:::::::	:	:
s ac								26 27		//////	<del></del>	<del>////</del>	<del>7</del> 777	7777
oĘ								30						////:
tive	2.5													////
dici										<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>///</u> .
ig										ļ <del>.</del>	<del>.</del>			
beir		-												
as										<u> </u>		:		:
etec	5	$\mathbf{p}_{e}$	Efusal due to G	Boring terminated at 4.5 ft. ravel and Cobbles and strong Cementation						<u> </u>				
erpi		1	rusar due to O	aver and coopies and strong comentation						=	į			
e int										<u> </u>	į			
ot p										L	:	:::::::::::::::::::::::::::::::::::::::		
틸										<u> </u>				
shot	7.5										:		:	:
pu											:	:	:	
ng a											:	:	:	:
bori											:	:	:	:
this												••••••		
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	10													
<u>e</u>	10													
ains												••••••		
pert											••••••	••••••	• • • • • • •	• • • • • • • •
ion														
mat														
<u>u</u>	12.5									L				
his														
_		<u> </u>								<u> </u>				
										<u> </u>				
										=				
	15									<u>.</u>	<u>.</u>	;		
										<u> </u>				
										L				
										L				
										Ī				
	17.5									[ : : : : : : : : : : : : : : : : : : :			:	
										F · · · · · · ·	:		::::::::	
										<u> </u>			:	
										<u> </u>		!	:	

- 1			PROJECT: Aloravita - Phases 3 & 4				1	PROJECT NO.:		9821	
			CLIENT: Shea Homes Limited Partnership								
1	(	Tro e X	PROJECT LOCATION: 67th Avenue and Jomax I	Road							
J	,		LOCATION: See Site Plan					ELEVATION:			
			DRILLER: D&S Drilling				_	LOGGED BY:		AM	
	LO	G OF BORING	DRILLING METHOD: 4" Flight Auger				_			2/30/20	19
		No. B45	DEPTH TO - WATER> INITIAL: ♀ A	FTER 24	HOU	IRS:	<u>*</u>		'ING> C		
ŀ				т —		T			T RESUL		
	돌 <u>중</u>			Graphic	Sample No.	s t∈	< #200	Plastic Limit			id Limit
	Depth (feet)		Description	) Jab	Z Z	Blow Counts	<del>*</del>	Water Content -		Liqui	IG EIIIII
					0,		%	Penetration -			
	٥			ALECTO IA	9940		27	10 20	30	40 5	50
		(SC-SM) Silty Clayey	Sand with Gravel, low plasticity, light brown,		9940	ľ	21	L	<u>.</u>		<u>.</u>
			slightly damp					i :	:	:	:
<u>ë</u>				WW				i i		:	:
e s									:::::::::::::::::::::::::::::::::::::::	:	:
듷								H			<u>:</u>
i ve	2.5				1			L			<u>:</u>
This information pertains only to this boring and should not be interpreted as being indicitive of the site.								<u> </u>		<u>:</u>	<u>:</u>
Ĕ					1			<u> </u>			:
ei j					1			: :	÷	:	:
as b		Е	Boring terminated at 4 ft.  avel and Cobbles and strong Cementation								:
g	5	Refusal due to Gra	avel and Cobbles and strong Cementation						:		:
pre								<u> </u>	:	:	:
af											÷
ë Ë								<b>-</b>			<u>:</u>
힏								ļ <u>.</u>			<u>:</u>
흥								<u></u>			<u>:</u>
양	7.5							L		:	:
Ē											:
β									:		
ğ											
his								F		::	:
ţ.								<u> </u>			÷
홅	10							<u> </u>			<u>:</u>
S I								<u> </u>	]	.;	<u>:</u>
rtai										:	: :
۳								L			<u>:</u>
aţio											:
Ĕ	12.5									:	:
Ĕ								h		÷	:
This										÷ · · · · ·	÷ · · · · ·
.								<u></u>	]		· · · · · ·
ŀ											<u>:</u>
											<u>:</u>
	15									<u>:</u>	<u>;</u>
										:	:
j				1						:	:
j								F		:	:
ŀ				1				· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	:	:····
ŀ								<u> </u>			<u> </u>
- 1	17.5			1				F		.;	÷
ļ				1				<u> </u>			<u>:</u>
Į											<u>:</u>
ŀ				1	<u> </u>	<u> </u>		<u> </u>		•	•

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJEC.	Γ NO.: ှ		9821	
		CLIENT: Shea Homes Limited Partnership										
(	( #roJe <b>X</b> )	<b>PROJECT LOCATION:</b> 67th Avenue and Jon	max Ro	oad								
		LOCATION: See Site Plan					_ E	ELEVATI	ON:			
م با	G OF BORING	DRILLER: D&S Drilling					_ L	OGGED	BY: _		AM	
-0		DRIELING WETTIOD. 4 Tight Auger							DATE	:	12/30/20	)19
	No. B46	DEPTH TO - WATER> INITIAL: ₩	_ AF	TER 24	HOL	IRS:	<u>*</u>		_ CAVI	NG> 🗵	<u> </u>	
				v	o)	, "	g			RESU		
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic L			⊣ Liqu	id Limit
ے ت		2000		່ອ	Sa_	<sup>m</sup> S	× %	Water Co			27	
0							H	Penetrat 10	ion - 🛚 💆	<u> 30</u>	⊿ 40 :	50
	(GC) Clavey G	ravel, medium plasticity, brown, damp			9940	þ	30	<del> </del>  `	:	:	· · · · · ·	:
	(	r										
					1							· <u>:</u>
	T-			• <b>&gt;&gt;</b>	1			<u>-</u>	· · · :		. :	· <u>:</u>
2.5	Pafusal dua to Gr	Boring terminated at 2 ft. avel and Cobbles and strong Cementation						<u> </u>	:	:		. <b>:</b>
	ixerusar due to Ora	aver and coopies and strong comentation						<u> </u>				. <u>.</u>
								L				<u>:</u>
								:	:	:		:
									:		:	
5									:	:	:	:
								<u> </u>				:
								<u>-</u>				
								ļ				
								<u></u>		;		. :
7.5								<u> </u>		;		. į
								<u> </u>	:::::::::::::::::::::::::::::::::::::::	;		
								L	<b>:</b>			<u>:</u>
								:	:	:	:	:
								[			:	
10												
									:	:	:	:
									• • • • • • • • • • • • • • • • • • • •	••••••	• • • • • • • • • • • • • • • • • • • •	
								<b>-</b>				
12.5								<b>-</b>				
								ļ				
								<u> </u>				
								<b>L</b>				: 
								<u>[</u>				
15								L				
									:		:	
								<u> </u>	:	:::::::	:	:
								<u> </u>	: : : : : : : : : : : : : : : : : : : :	!	:	
								<u> </u>		• • • • • • • • • • • • • • • • • • • •		
								<u> </u>				
17.5								<b></b>				
								ļ				
								<b> </b>				
	·			·			_					

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO	).:	9	821	
		CLIENT: Shea Homes Limited Partnership				_					
		PROJECT LOCATION: 67th Avenue and Joma	x Road								
l '		LOCATION: See Site Plan					ELEVATION:				
l. <sub>-</sub>		DDULED, DAGD III				_	LOGGED BY			.M	
LO	G OF BORING	DRILLING METHOD: 4" Flight Auger				_ '		 ATE:			10
	No. B47	DEPTH TO - WATER> INITIAL: \(\forall \)	AETED 2	4 HOI	IDG.	_		AVING			19
<u> </u>	110. 677	DEFINIO-WATER> INITIAL. =	ALIENZ	4 110C	I	_					
モ			흗	용.	× s	< #200	Plastic Limit	EST RE	<u>-SULI</u>	S	al Linait
Depth (feet)		Description	Graphic	Sample No.	Blow	<del> </del>	Water Conte			Liquid	a Limii
			ا ق	ľ	0	%	Penetration -				
0								0 3		0 5	50
	(SC) Clayey Sand with	h Gravel, low-medium plastiticy, tan, slightly	- V./././	9940	5	40	: ':	. ':		:	:
		damp	7.;/.;/.								:
			7.7.7								:
	50 blows for	2 inches on the first 6 inch interval	777		N		7777777	7777	7777	7777	<u>.</u>
			<i>\.</i> ;/;/;		50						<u>:</u>
2.5			7.7.7	1			L	:			<u>:</u>
			<i></i>								<u>:</u>
	E	Boring terminated at 3 ft. avel and Cobbles and strong Cementation					:	. :		:	:
	Refusal due to Gra	avel and Cobbles and strong Cementation								· · · · · · · · · · · · · · · · · · ·	:
							:			 :	:
										; :	: :
5								:		: :	÷ · · · · ·
										: :	į
								;		:	<u>:</u>
							L				:
										:	:
7.5											
7.0										; :	
										; :	<u> </u>
										:	<u> </u>
											<u>.</u>
								;		: :	<b>:</b>
10										: :	<u>:</u>
								:		: :	<u>:</u>
											:
							:			: :	:
											<u> </u>
										:	<u>:</u>
12.5							L				<u> </u>
										:	<u>:</u>
											<u>.</u>
							<u></u>				: :
											:
15										<i>;</i>	:
										: :	:····
							<u> </u>			: :	:····
							<u> </u>				<u> </u>
							ļ			:	<u> </u>
							ļ				<u>.</u>
17.5							L				:
											:
										: :	:
											<u>:</u>

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT N	<u>ю.:     </u>		9821	
		CLIENT: Shea Homes Limited Partnership									
{	(#role/K)	PROJECT LOCATION: 67th Avenue and Jomax	Road								
		LOCATION: See Site Plan				_ [	ELEVATION	1:			
م با	G OF BORING	DRILLER: D&S Drilling				_ l	LOGGED B	Y: _		AM	
1-0		DIVILLING METHOD. 4 Tright Auger						DATE		2/30/20	)19
	No. B48	DEPTH TO - WATER> INITIAL: ₩ A	FTER 24	HOI	JRS:	<u>*</u>			NG> _		
			<u>.0</u>	<u>o</u>		8			RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limi Water Conf			⊣ Liqι	uid Limit
			ا ق	ű	1 0	8	Penetration			3	
0								20 			50
	(SC-SM) Silty Clayey	Sand and Gravel, low plasticity, brown, damp		9940	6	21	<u> </u>	.   			
				1			:	:	:	:	:
							:			:	:
							:			:	:
2.5							:	:	:	:	:
							:	:	:	:	:
				}			<u></u>	:			:
				4			F	:		· :: · · · ·	::
$\vdash$				1			<u> </u>	. <del>:</del>		<u>:</u>	· <del>:</del> . · · · · ·
	D	oving terminated at 4.5 ft	<u>innin</u>								
5	Refusal due to Gra	oring terminated at 4.5 ft. avel and Cobbles and strong Cementation					L				
	11010001 000 00 011	coccios una su cuig comonimien									
							<u>.</u>				
							<u></u>	. <u>;</u>		: : :::	. ;
								. <u>:</u>			
7.5							L				
										:	:
								:	:	:	:
							:	:		:	:
							<u> </u>			:	
10								:			:
10							<u>-</u> ;	• • • • • •	••••••	• • • • • • •	• • • • • • • •
								• • • • • •			• • • • • • •
							<u> </u>	. <u>.</u>			
12.5							ļ				
							: 				
							ļ	. <del>.</del>			
							<u> </u>				
							<u> </u>	. <u>:</u> . <u>:</u>			
15							L				
							L				
											:
							<u> </u>	:	::::::	:	:
								:			:
17 =							F : : : : :	· :	!		:
17.5							F				
$\vdash$							<u> </u>	: <u>:</u> : :			·
							<u> </u>	· <u> </u>		· <u> </u>	·
1											

1				<b>PROJECT:</b> Aloravita - Phases 3 & 4					_ F	PROJECT N	Ю.: _	9	9821	
		/		CLIENT: Shea Homes Limited Partnership										
	{	( #ro	/e/X( )	PROJECT LOCATION: 67th Avenue and	Jomax R	oad								
		1		LOCATION: See Site Plan					_ E	ELEVATION	I:			
	10	~ ^E		DRILLER: D&S Drilling					_ L	LOGGED B	<b>Y</b> :	A	\M	
	LU		BORING	DRILLING METHOD: 4" Flight Auger							DATE	: 12	2/30/201	19
		No.	B49	DEPTH TO - WATER> INITIAL: ♀	AF	TER 24	HOU	IRS:	¥			NG> _C		
						1					TEST	RESUL	rs	
	Depth (feet)			Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Limi	t		Liquid	d Limit
	ଅ କ			Description		E	Sar N	ු ක	> %	Water Cont		•		
	_								-0	Penetration			40 5	
	0		(CM) 9:14	y Curval man plantia buoyen dama			9940 <sup>.</sup>	ļ	17	10	20	30 4	40 5	
		-	(GM) SIII	y Gravel, non-plastic, brown, damp						<u>-</u>			: ::::::::::::::::::::::::::::::::::::	:
										<u>.</u>	. :	:	<u>:</u>	<u>:</u>
site										<u>:</u>	<u>:</u>		<u>:</u> 	:
tþe											:	:	:	:
e of	2.5									:	:	:	:	:
Ϊį		1								:	:	:	:	:
пğ										:	:	:	:	:
This information pertains only to this boring and should not be interpreted as being indicitive of the site.										F	· <del>:</del> · · · · ·		:	: :
be.						<b>FIA</b>					· <del>:</del> · · · · ·		÷	:
d as													: :	<u>:</u>
rete	5			D 1						<u> </u>			<u>:</u>	<u>:</u>
terp		D <sub>c</sub>	afusal dua to G	Boring terminated at 5 ft. ravel and Cobbles and strong Cementation	vn.					<u> </u>	. į		.i	<u>:</u>
e in			erusar due to C	raver and Coooles and strong Cementatio	711	<u> </u>							: ::	<u>:</u>
ă T										:	:	:	:	:
g										:	:	:	:	:
hou	7.5												:	:
nd s	7.0												:	:
g a											. :		::	:
ori i											. :	• • • • • • • • •	:	:
nis k											· : · · · ·		÷ · · · · · ·	:
to T											· {· · · · ·		÷	<u>.</u>
Ĕ	10									L	. į			<u>:</u>
us c										<u>-</u>	. į		. <u>.</u>	: :
ertai										<u>.</u>			: :::	: :
Ē.											: 		: 	: :
atio										L				: :
Porm	12.5									:		:	:	
sin										:	:	:	:	:
Ē													:	
		-								<u></u>	• • • • • • •			:
										<u></u>				
														· • • • • • • •
	15									<u> </u>			·	· · · · · · ·
										<b> </b>			. <u>.</u>	: :
										<b>L</b>	. <b>.</b>		<u>:</u>	: :
										<u> </u>	. j		: 	<u>:</u>
										:	:		:	
	17.5	]									:	:	:	:
										F		:	:	:
										<u> </u>	:	:	:	
										<u> </u>	<u> </u>		<u> </u>	

			PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:	982	1
			CLIENT: Shea Homes Limited Partnership							
	(	( #roJeX )	PROJECT LOCATION: 67th Avenue and Jon	nax Road						
			LOCATION: See Site Plan				_ ī	ELEVATION:		
	. ~		DRILLER: D&S Drilling				_ ı	LOGGED BY:	AM	
	LO	G OF BORING	DRILLING METHOD: 4" Flight Auger				_	DATE:		0/2019
		No. B50	DEPTH TO - WATER> INITIAL: ♀		24 HO	URS:	<u>*</u>			
		1101 200			$\neg$	Т	_	TEST RE		
	ŧ÷			Graphic	Sample	.   ≥ \$E	< #200	Plastic Limit	<u>30L13</u>	iauid Limit
	Depth (feet)		Description	l db	la S	Blow	#   v	Water Content -	, -	iquiu Liiiii
					0)	$\perp$	%	Penetration -	77773	
	0			40000			_	10 20 30	40	50
		(GP-GM) Si	lty Gravel, non-plastic, brown, damp		9940	JB 	6		:	:
									:	:
<u>ن</u> ے									:	:
e s									· · · · · · <del>.</del> ·	:
⇟┃		1	Paring terminated at 2 ft	4.4.1:16	57			·····		· · · · · <del>:</del> · · · · · ·
<u>s</u>	2.5	Refusal due to G	Boring terminated at 2 ft. ravel and Cobbles and strong Cementation					<b></b>		
탢		Troitistal date to of	and suring community					L		<b>:</b>
Ĕ								L		: :
ei l									:	:
as b									:	:
pa	5							: : :	:	:
pret								F		
nter										
je j								ļi		
힣								Li		
릵										
힣	7.5								:	:
ğ										:
ng a									:	:
ŏ								·····		
l sic										
#								<u>i</u>		
Ϊ́	10							<u>i</u>		
o Su									<del>.</del>	
rtail								L		:
<u>۾</u>									:	:
ţiol									:	:
Ĕ	10 5							<u> </u>		
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	12.5							F		••••
This								<u> </u>		
-								<u> </u>		
						1		<b> </b>		
						1		<u></u>		<u>:</u>
	15							L		
									:	:
						1		F		:
								· · · · · · · · · · · · · · · · · · ·		
								<u> </u>		
						1		<u> </u>		
	17.5					1		<u> </u>		
								<u> </u>		
								L		
						1	<u> </u>	1	****	

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO.:	9821
		CLIENT: Shea Homes Limited Partnership						
•	( #role / X )	PROJECT LOCATION: 67th Avenue and Jomax	Road					
		LOCATION: See Site Plan					ELEVATION:	
ا ا	G OF BORING	DRILLER: JKI Solutions				_ L	LOGGED BY:	
-		BRIELING WETTIOD: HOWARD 5103 Backhoc					DATE:	
	No. TP1	DEPTH TO - WATER> INITIAL: ₩	AFTER 24	HOL	JRS:		CAVING>	
ے ا			<u>.</u> 2	<u>e</u>	<sub>&gt;</sub> ω	% < #200	TEST RES	ULTS
Depth (feet)		Description	Graphic	Sample No.	Blow	¥ /	Plastic Limit	— Liquid Limit
L			٥	S	0	%	Penetration -	773
0			.,,,,,,,				10 20 30	40 50
	(SC) Clayey Sand with	Gravel, low-medium plastiticy, brown, slightly		1				
		damp	////	1			ļ	
	Soil	l transitions to light brown	////	1			<u> </u>	
		ountered weak Cementation						: :
2			////	1			: : :	: :
			////					: :
			<i>7777</i>				-	: :
			<u> </u>	1			iiiii	
	B	Soring terminated at 3 ft. al due to strong Cementation						· · · · · · · · · · · · · · · · · · ·
	Refusi	ar due to strong Cementation					F	
4								
`							ļi	
							[ <u>.</u>	
6							L	
)							ļ	
							łiii	
. 8								
								: : :
							[	
10							[;;; 	
10								
							[	
							<u> </u>	
12							<b>-</b> i	
							[	
							ļ <u>.</u>	
							ļ <u>.</u>	
14							L	
							l	
	1				<u> </u>	_		

		PROJECT: Aloravita - Phases 3 & 4				_ [	PROJECT NO	).:	9	9821	
		CLIENT: Shea Homes Limited Partnership									
1	( #role (K)	PROJECT LOCATION: 67th Avenue and Jomax	Road								
		LOCATION: See Site Plan				_ I	ELEVATION:				
م با	G OF BORING	DRILLER: JKI Solutions				_ I	LOGGED BY	:	T	MP	
-0		DRILLING WIETHOD. 110 Wald 3103 Backlide						ATE:		./10/20	20
	No. TP2	DEPTH TO - WATER> INITIAL: ♀ A	FTER 24	HOL	JRS:	<u>.</u>	c	AVINO	<b>G&gt;</b> <u>C</u>		
			o	ω		g	Т	EST R			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit			Liqui	id Limit
ے ت			<u>ຫ</u>	Sa	<sup>m</sup> 8	×   %	Water Conte				
0							Penetration - 10 2	n 2///		40 5	50
	(SC-SM) Silty Clayey	Sand with Gravel, low plasticity, light brown,	RUUL					<del></del>	:	:	:
		slightly damp					- :	· · · · · · · · · · · · · · · · · · ·	:	:	:
								:		:	÷
								 :	:	:	<u>:</u>
							F	<u>.</u>	<u>.</u>	<u>:</u>	<u>.</u>
2			THATA	1					:	<u>:</u>	<u>.</u>
	D of us	Boring terminated at 2 ft. al due to strong Cementation							:	<u>:</u>	<u>:</u>
	Refus	ar due to strong Cementation							:	:	:
							- :		:	:	:
								:	:	:	:
4							:	:	:	:	:
							:	 :	:	:	:
								 :	:	:	
								: :	:	: :	÷
								:	<u>:</u>	:	÷
									: :	<u>:</u>	
6									<u>:</u>	<u>:</u>	<i>:</i>
								<u>.</u>	<u>:</u>		
								:	: ;	: .;	: :
							-		:	<u>:</u> .:	
							ļ	:	:	<u>:</u>	<u>:</u>
8								:	:		
								:	:		
							-	,	:	:	
								:			
								:		<u>:</u>	
								:		<b>:</b> · · · · ·	÷ · · · ·
10								:			÷
								;	: :	<u>.</u>	÷
			1				ļ	:	:	: 	: :
							<u> </u>	:	:	<u>:</u>	<u>:</u>
12							L	: •	:	: 	<u>;</u>
			1				[ <u>:</u>	•	:	: 	<u>:</u>
							<u> </u>		:	:	:
			1				<u> </u>	:	:	:	:
							L :	· · · · · · · · · · · · · · · · · · ·	:	:	:
			1				[		:	<u>:</u>	<u>:</u>
14							<u> </u>	: :		<u>:</u>	
			1				ļ	: :		<u> </u>	<u>:</u>
							[ <u>.</u>	:	:	: ::	<u>:</u>
			•	•	•		•				
1											

Ţ			PROJECT: Aloravita - Phases 3 & 4					_ F	PROJE	CT NO.	:	9821	
			CLIENT: Shea Homes Limited Partnership										
	(	(#ro∠e/\\	PROJECT LOCATION: 67th Avenue and Jom	ax Ro	oad								
			LOCATION: See Site Plan					_		-			
	LO	G OF BORING	DRILLER: JKI Solutions					_ L	OGGE				
ı			DRILLING WIETHOD. Howard 5103 Backfloe								TE:	01/10/2	
L		No. TP3	DEPTH TO - WATER> INITIAL: ₩	_ AF	TER 24	HOL					VING>		
ı	۔ م				<u>:</u>	<u>e</u>	\ <u>.</u> .g	% < #200		TE	ST RES	ULTS	
ı	Depth (feet)		Description		Graphic	ᄩᇰ	Blow Counts	¥		c Limit ⊢ Content		— Lic	quid Limit
ı					Ō	Š	ا م	%	Panati	ration -		773	
	0				, , , , , , ,			Ī	10	0 20		40	50
L		(CL) Sandy Clay, m	nedium plasticity, red brown, slightly damp			0028	ľ	51	l				
						1			- :	:	:	:	:
						ł			-	:	:	:	:
						1				:	:	:	:
5	2					1				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
1		S	Soil transitions to brown			]			:	:	:	:	:
						1			<del>.</del>  -	· · · · · · <del>:</del>		· · · · <del>:</del> · · · ·	:
<u> </u>						}			[ <u>.</u>	<del></del> :		<del>;.</del>	
1						1			<u>:</u>	<u>.</u> .		<del>.</del>	
; ;						ł							
	4	Encour	ntered highly Weathered Rock			1			<u> </u>				
<u>}</u>		Encour	nered highly weathered Rock			ł			<u> </u>				
						1							
1						1							
						]			[ ;				
	6	_				1			<u></u>				
2		Enc	countered Weathered Rock			ł			<u> </u>		;		
<u> </u>						1			·				
3	}	E	Paring terminated at 7 ft		<del>/                                    </del>	1			-	:	:	:	:
מוווס מוווא מוווא מוווא מוווא מוויא מוווא מוויא מוווא מווווא מוווא מוווא מוווא מוווא מווווא מוווא מוווא מווווא מוווא מוווא מוווא מווווא מוווא מווווא מוווא מ		Refusal	Boring terminated at 7 ft. due to highly Weathered Rock							:	:	:	:
	8											:	
5												: : : : : : : : : : : : : : : : : : : :	:
										· · · · · · · · · · · · · · · · · · ·		:	
1										• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	
<b>!</b>										• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • •	
									[	· · · · · · : · : · : · : · : · : · : ·		· · · · : · · · · · · ·	
Ĺŀ	10								<u> </u>				
}													
┟													
ŀ									[ <u>;</u>				
-									<b>-</b>				
	12								<u> </u>				
									<u>:</u>				
									[				
									<b>-</b>				
													:
	14									:		:	:
ļ									····:			:	:
t										:	:	:	:
þ													:

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJE	CT NO	D.:	9	821	
1		CLIENT: Shea Homes Limited Partnership										
1 '	(#ro/e/\)	PROJECT LOCATION: 67th Avenue and Jomax	Road									
		LOCATION: See Site Plan						TION:				
lı o	G OF BORING	DRILLER: JKI Solutions				_ ١	_OGGI	ED BY				
-~		DRILLING METHOD: Howard 310J Backhoe							ATE:			
	No. TP4	DEPTH TO - WATER> INITIAL:	AFTER 24	4 HOL					AVINO			
는 단 단			<u>i</u> e	<u>e</u> .	> ₹	% < #200	Disati	T c Limit	EST R			: al I ::
Depth (feet)		Description	Graphic	mg &	Blow	¥ V	Plasti   Water	c Limit r Conte			Liqu	ia Limi
				S		%	Penet	ration -				
0			lana.								10	50
	(SM) Silty Sand with (	Gravel, non-plastic, red brown, slightly damp						· ·			· ·	<u>:</u>
							-	:	:		:	:
-							-	:	:		:	:
								:			:	:
2							l · · · · · ·	:	:		:	:
	S	Soil transitions to brown		1			F · · · · ·	:	:	 :	:	<u>:</u>
							ļ  -	:	: :	: :	:	:
				1			[	:	: :	: :	<u>:</u>	<u>:</u>
	Encountered highly	Weathered Rock and weak Cementation							:		: :	<u>:</u>
							<b> </b>	:	: :	: :	:	<u>:</u>
4	E 0 0 11	ntered moderate Cementation					L	:	:	:	:	<u>:</u>
	Encour	ntered moderate Cementation						:	<u>.</u>		<u>:</u>	<u>:</u>
							Ī	:	:	: :	<u>:</u>	<u>:</u>
							<b>-</b>	:	:	:	:	:
							-	:			:	:
6								:	:		:	:
								:	:		:	:
								:	:		:	:
							ļ ļ	;	:		:	:
	Dafaal dee to W	Soring terminated at 7 ft. athered Rock and moderate Cementation						:	: :		:	÷
	Kerusai due to We	amered Rock and moderate Cementation					<u> </u>	; · · · · ·	: :		: · · · · ·	<u> </u>
8							<b></b>	<u>.</u>	<u>:</u>		<u>:</u>	<u>.</u>
							<b>.</b>	<b>:</b>			<u>:</u>	
								· 				<u>.</u>
							<b> </b>	: :	: :		: :	
							<b>-</b>	<u>;</u>	<u>:</u>		<u>:</u>	<u>:</u>
10							<u>L</u>	: }	:		<u>:</u> }	<u>.</u>
								:	: :			<u>.</u>
							<u> </u>	:			:	
							ļ	:	:		:	
							<u> </u>	; :	:		:	:
12								: · · · · · · · · · · · · · · · · · · ·	: · · · · · · · · · · · · · · · · · · ·		: :	:
12							<b></b>	: · · · · · · · ·	: · · · · · · · · · · · · · · · · · · ·		: · · · · · ·	· · · · ·
							ļ	:	:		: · · · · ·	
								:				<u> </u>
							[	<u>:</u>	:	!	<u>.</u>	÷
							<b>-</b>	:	: :	: !	: :	<u>.</u>
14							<b>L</b>	; ;	: :	: !	<u>:</u>	<u>.</u>
									: :		:	<u>.</u>
							<u> </u>	:	:	:	:	:
				1		<u> </u>	l	:	•	:	:	\$11111

ſ				PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO.:	:	9821
١				CLIENT: Shea Homes Limited Partnership							
١	(	#ro c	₽ <b>/</b> ( )	PROJECT LOCATION: 67th Avenue and Jon	ax Road						
			Janes de la constitución de la c	LOCATION: See Site Plan				_	ELEVATION: _		
	LO	G OF F	BORING	DRILLER: JKI Solutions				_ เ	LOGGED BY:		MP
				DRILLING METHOD: Howard 310J Backhoe							1/10/2020
ı		No. 7	175	DEPTH TO - WATER> INITIAL:	AFTER 24	HOL	JRS:	<u>¥</u>		VING> <u></u>	
					<u>.0</u>	o		8		ST RESUL	
١	Depth (feet)			Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit		Liquid Limit
					ō	တိ	۵ "ا	8	Water Content Penetration -		
Ì	0								10 20	30 4	40 50
ĺ		(	GM) Silty Gra	vel, non-plastic, brown, slightly damp						:	: :
ı				Encountered Boulders		1			- :		:
يو										:	÷ · · · · · · · · · · · · · · · · · · ·
e s									l · · · · · <del>.</del> · · · · <del>.</del> · ·		· <u></u> <del></del>
<del>≐</del>									F	:	<u></u>
ě	2								<u> </u>		<u></u>
盲					<b>₽</b>	ł					<u> </u>
<u></u>									ļ <u>.</u>		<u></u>
			Encounter	red very highly Weathered Rock		1			<u> </u>	·	<u></u>
as				·							<u>:</u>
j ted	4					1				:	: :
ğ										:	: :
ᄩ						1			- : : : : : : : : : : : : : : : : : : :	:	: :
흅					141				L :	:	: :
tains only to this boring and should not be interpreted as being indicitive of the site.			B afract du	Foring terminated at 5 ft. se to moderately Weathered Rock							
藚			Refusal du	e to moderately weathered Rock					F		
당 I	6								<b>-</b> i		ļ
au									<u> </u>		
ë											
ğ <u>s</u>									ļ <u>.</u>		<u> </u>
₽   											
칕	8								<b>_</b>		<u>.</u>
္ဇ											<u>.</u>
<u>ia</u>									: :		<u>.</u>
립									<b>-</b>		<u>;</u>
This information per										:	
E I	10										: : : : : : : : : : : : : : : : : : : :
֓֞֞֞֞֩֞֞֩֟֡֞֟֡֩֟									<u> </u>	:	: :
ׅׅׅׅ֟֟֟֝֟֝֟֝֟֝֟									·····		· · · · · · · · · · · · · · · · · · ·
ı											
ı											· · · · · · · · · · · · · · · · · · ·
ŀ									ļ		<u> </u>
ŀ	12								<u></u>		
ļ									<u> </u>		<u> </u>
ı									<del>.</del>		
ļ									ļ <u>.</u>		<u>.</u>
Į									<b> </b>		<u>.</u>
	14								L		<u>:</u>
J											
									<u> </u>	:	
ŀ									I	!	********
	Ro	ock outcrop	ping, surface l	boulders and cobbles							
- 1											

		PROJECT: Aloravita - Phases 3 & 4					PROJECT NO.:	9821
		CLIENT: Shea Homes Limited Partnership						
(	(#roJeX	PROJECT LOCATION: 67th Avenue and Joma	x Road					
		LOCATION: See Site Plan				_ 1	ELEVATION:	
م ا		DRILLER: JKI Solutions					LOGGED BY:	TMP
ILO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe				_	DATE:	
	No. TP6	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	4 HOL	JRS:	¥	CAVING>	
						г –	 TEST RES	
Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Limit	
9 æ		Description	G a	San N	m g	V	Water Content - •	-
					-	6	Penetration -	
0	(CC) C1 C1	C1 1:1-4:4:11-1-4	1 7:7:7:7				10 20 30	40 50
	(SC) Clayey Sand some	Gravel, medium plastiticy, red brown, slight damp	<sup>1y</sup>  /:/:///	1			L	
		damp	////	1				
			7777	1			<u> </u>	
				1				: :
2			7.7.7.7	1			: :	: :
				1	1			
				1			<del></del>	
				1	1		[ <u>.</u>	
		transitions to light brown					[	
	Encountered very hig	hly Weathered Rock and weak Cementation		1			<b>-</b>	
4								
			77.7.7	1				: :
				1				
			7.7.7.7	1				:
				1				
			7.7.7.7	1			·····	
6				1			<u> </u>	
				1			[	
				1				
			7.7.7.7	1			<u> </u>	
				1				
8				1				
			////	1				
			<i>[],</i> ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	1	1		F	
				1	1			• • • • • • • • • • • • • • • • • • • •
				1			[·····]·····[··	
			////	1			<u></u>	
10				4			<b>-</b> ii	
	Во	oring terminated at 10 ft.			1			
					1		<u> </u>	
					1		F : : : : : : : : : : : : : : : : : : :	
					1			
					1			
12					1		<b></b>	
					1		<u> </u>	
					1		[ <u>i</u> i	
					1		<b>†</b>	
					1		<u> </u>	
14					1			
<u> </u>					1		F · · · · · · · · · · · · · · · · · · ·	
					1		<b> </b>	
				L	L		<u> </u>	<u> </u>

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT	NO.:	982	i
		CLIENT: Shea Homes Limited Partnership									
4	( #role / A	PROJECT LOCATION: 67th Avenue and Jomes	ax R	oad							
		LOCATION: See Site Plan					_	ELEVATIO			
م با	G OF BORING	DRILLER: JKI Solutions					_ L	OGGED I			
1-0		DRILLING WETHOD. Howard 5103 Backfloe							DATE:		/2020
	No. TP7	DEPTH TO - WATER> INITIAL:	AF	TER 24	HOL	JRS:	<u>¥</u>		CAVING		
۲ (				<u>.</u> 2	ē	<u>~ &amp;</u>	8		TEST RE	SULTS	
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	% < #200		nit	—— L	iquid Limit
				Ō	Ö	0	%	Penetration		77773	
0								10	20 30	40	50
	(SM) Silty Sand wit	h Gravel, non-plastic, brown, slightly damp						l			
								:	: :	:	:
3116.								-		:	:
									: :	:	:
2									: :	:	:
		l transitions to light brown							: :	:	:
	Encounte	erd very highly Weathered Rock						<del></del>		· · · · · · · · · · · · · · · · · · ·	
								 		· · · · · · <del>.</del> · ·	
3	Encountered highly	Weathered Rock and moderate Cementation						<del>.</del>			
š								F		· · · · · · <del>.</del> · ·	
4										:	:
<u> </u>											
<u> </u>								l			
<u> </u>											
								<del> </del>			
4	r	1 10 44						<u> </u>			
	Ence	ountered weak Cementation						ļ <u>.</u>			
								[		<del>.</del>	
3	F	Boring terminated at 7 ft.		1111111	1					<u>.</u>	
	Refusal du	Boring terminated at 7 ft. the to very highly Weathered Rock						<b>-</b>			
8								<u> </u>			
2								ļ <u>;</u>		<del>.</del>	
-								ļ			
<u> </u>								<b>-</b>			
								:		:	:
10								:		:	
,										:	:
								<b> </b>		:	
								ļ ļ		· · · · · · · · · · · · · · · · · · ·	:
								[····		· · · · · · · · · · · · · · · · · · ·	:
12											• • • • • • • • • • • • • • • • • • • •
12								<u> </u>			
								ļ			
								<u> </u>			
								<u> </u>			
14								<u> </u>			
								[ <u>.</u>		<del>.</del>	
	<u> </u>			<u> </u>		<u> </u>		· · · · · ·	<u> </u>	•	-

		PROJECT: Aloravita - Phases 3 & 4				_	PROJEC	T NO.		9	821	
		CLIENT: Shea Homes Limited Partnership										
{	(#ro/e/ <b>\</b> )	PROJECT LOCATION: 67th Avenue and Jomas	x Road									
		LOCATION: See Site Plan					ELEVAT					
ماا	G OF BORING	DRILLER: JKI Solutions				_	LOGGEI	D BY:		TN	MР	
		DRILLING METHOD: Howard 310J Backhoe						_ DA	TE: _	01/	/10/202	20
	No. TP8	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	HOI	JRS:	<u>*</u>		_ CA	VING	i> <u>C</u>		
			٥ ا	0		g		TES	STRE	SULT	s	
Depth (feet)		Description	Graphic	를 할	Blow Counts	< #200	Plastic				Liqui	d Limi
		Bosonphon	E	Sar	කි ලි	× %	Water 0					
0						+	Penetra		20		Λ E	
	(SM) Silty Sand trace	e Gravel, non-plastic, brown, slightly damp		1			10	<u>20</u>	30	J 4		<u>50</u> :
	(SIVI) SIITY Saild trac	e Graver, non-prastic, brown, stightly damp							• • • • :			: :
												<u>.</u>
							<u></u> .	<b>.</b>	:			:
							ļ <u></u> .		:			:
2							:	:	:			:
	Encountered very hig	hly Weathered Rock and weak Cementation					Ī :	:	:			:
						1	<u> </u>	· · · · · <del>·</del> · ·	• • • • • • •		 :	:
						1	<u> </u>	· · · · · <del>.</del> · ·	• • • • • •			:
								· · · · · <del>.</del> · ·				<u>.</u>
												<u>:</u>
4									:			<u>:</u>
							l					:
									:			:
							- :	:	:			:
									•••••			: :
							· · · · · · · · · · · · · · · · · · ·	· · · · · <del>·</del> · ·	• • • • • •			: :
6	Encountered highly V	Weathered Rock and moderate Cementation						• • • • • • •	$\cdots \vdots$			<u>:</u>
							ļi.					<u>:</u>
												<u>.</u>
							·		;			: :
							ŀ					<u>:</u> :
8							L					<u>:</u>
4	В	Boring terminated at 8 ft.					:		:			:
	Refusal due to highly	Weathered Rock and moderate Cementation					<b> </b>	:				:
						1	<u> </u>		• • • • • •			:
						1		• • • • • • •				
							ļ					<u>:</u>
10						1	<u> </u>			;		· 
							[;				: :	<u>:</u>
						1	[ <u></u> .					: :
						1	ŀ.		. :			:
							ļ : : : :		:			:
12						1			• • • • • • • • • • • • • • • • • • • •			: :
14							<u> </u>	• • • • • • • •	••••			
						1	ļ		• • • • •			
						1	[ <u>.</u>					<u>.</u>
							ļ <u>.</u>		:			:
						1	ļ					:
14						1	:		:			:
							F		:			:
						1	<u> </u>				· · · · · · · · · · · · · · · · · · ·	:
									• • • • • •			<u>:</u>

		PROJECT: Aloravita - Phases 3 & 4					_ F	PROJECT	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership										
{	(#ro/e/ <b>/</b> ( )	PROJECT LOCATION: 67th Avenue and Jon	nax Ro	oad								
		LOCATION: See Site Plan					_	ELEVATIO				
ıο	G OF BORING	DRILLER: JKI Solutions					_ L	LOGGED	_			
LO		DRILLING WILLIIOD. Howard 3103 Backing							-		01/10/2	
	No. TP9	DEPTH TO - WATER> INITIAL: ₩	_ AF	TER 24	HOL	JRS:	_				<u>C</u>	
ч ~				. <u>e</u>	ē	<u>~ &amp;</u>	% < #200	<u> </u>	TES	T RESI	JLTS	
Depth (feet)		Description		Graphic	ᄩ	Blow Counts	<del> </del>	Plastic Lir Water Co			— Lic	quid Limi
				Ō	Ö	٦-٥	%	Penetration			72	
0								10	20	30	40	50
	(SM) Silty Sand wit	th Gravel, non-plastic, brown, slightly damp						l			:	
								:	:	:	:	:
								- :	:		:	:
								:			:	:
								:	:	:	:	:
2	So	il transitions to light brown						F	· · · <del>.</del> · · ·	:		· · · <del>.</del> · · · · ·
	Encounte	ered very highly Weathered Rock						ļ <u>.</u>		:		· · · : . · · · · · · ·
								[·····	·			
								[ <u>.</u>				
								F		:	:	:
4										:		
									<u>;</u>	;	<u>:</u>	<u>;</u>
								f	<u>:</u>		<u>:</u>	<u>:</u>
	Encountered highly	Weathered Rock and moderate Cementation	.					F :	:	:	:	:
	Encountered inginy	Weathered Rock and moderate Cementation	•						:	:	:	:
6									:	:	:	:
•												
								ļ		:	:	
									• • • • • •			
		Boring terminated at 7 ft. eathered Rock and moderate Cementation						[				
	Refusal due to W	eathered Rock and moderate Cementation						<b>-</b>				
8								L				
											:	
								<u> </u>	<del>.</del>	;	: <u>.</u>	
								<b>.</b>				
10								:	:			:
									:			
								:				
										!		
										• • • • • • • • • • • • • • • • • • • •	:	
								f				
12								<b></b>				
								<u> </u>				
										;		
								<u> </u>		;		
								<b> </b>				
14								l				
								Γ	:	:	:	:
					I	l	1	F		:	;	
			l						- :	:	:	

		PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:	9821
		CLIENT: Shea Homes Limited Partnership						
•	(#ro∫eX	PROJECT LOCATION: 67th Avenue and Jomax F	Road					
		LOCATION: See Site Plan				_ [	ELEVATION:	
م با		DRILLER: JKI Solutions				_ เ	LOGGED BY:	TMP
ILO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DATE: _	01/10/2020
	No. TP10	DEPTH TO - WATER> INITIAL: ♀ A	FTER 2	4 HOL	JRS:	<u>*</u>	CAVING	<u> </u>
			٥	0		g	TEST RE	SULTS
Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Limit	—— Liquid Limit
ے ت		'	່ ບໍ່	Sa		×   %	Water Content - ● Penetration -	77771
0							Penetration - 10 20 30	
	(SM) Silty Sand with C	Gravel, non-plastic, light brown, slightly damp		<u> </u>				: :
								: : : : : : : : : : : : : : : : : : : :
							L	
	Encountered very highly	y Weathered Rock and moderate Cementation						
							<u> </u>	
2	Emaguetanad W	anthomad Doods and atnones Compentation		:			L	
	Encountered we	eathered Rock and strong Cementation					<u> </u>	
								· · · · · · · · · · · · · · · · · · ·
	D	Paring terminated at 2 ft		4			- : : :	: :
	Refusal due to W	Boring terminated at 3 ft.  Jeathered Rock and strong Cementation						: :
4								
							<u> </u>	
							[	
							<del>-</del>	
6							Lii.	
·							Ī	
							<u> </u>	
8							: : :	
							ļi	
							[	• • • • • • • • • • • • • • • • • • • •
							······	
							<del> </del>	
10							L	
							<u> </u>	
							<u> </u>	
12								
12								
							ļ	
				1			[	
				1				
				1			<del> </del>	
14							<u></u>	
							[ <u>i</u> <u>i</u> i.	
							t i	
				<u> </u>			I;;.	

		PROJECT: Aloravita - Phases 3 & 4				_ 1	PROJECT NO.:		9821	
		CLIENT: Shea Homes Limited Partnership								
(	(#ro∫e 🔨 )	PROJECT LOCATION: 67th Avenue and Jomas	x Road							
		LOCATION: See Site Plan				_	ELEVATION: _			
م با		DRILLER: JKI Solutions				_	LOGGED BY: _		TMP	
lLO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DAT	E:	01/10/202	20
	No. TP11	DEPTH TO - WATER> INITIAL:	AFTER 24	4 HOU	JRS:	<u>¥</u>	CAV	/ING> _		
			0		T	0	TES.	T RESUL	TS	
Depth (feet)		Description	Graphic	Sample No.	Blow	< #200				id Limit
9 <del>8</del>		Description	G <sub>ra</sub>	Sar N	ॼ ઙૢ	× %	Water Content -			
						61	Penetration -			F0
0	(GC) Clovey Grovel 1	ow-medium plasticity, brown, slightly damp	6,87	4			10 20	30	40 5	50 :
	(GC) Clayey Graver, I	ow-medium prasticity, brown, singhtly damp		1						÷
			7.27	1						<u>.</u>
			222	1			† <u>:</u> <u>:</u>	:	. :	<u>:</u>
				<b>,</b>			ļ <u>i</u>		. <u>:</u>	<u>:</u>
2				]				:	:	:
	Enco	untered strong Cementation		<u> </u>				:	:	:
				1			- : :	:	:	:
							<del>-</del>		. :	<u>:</u>
				1						:
							F			<u>.</u>
4				1			L			<u>:</u>
										<u>:</u>
				1			Ī			:
							<b>!</b> : :	:	:	:
				1			L : :	:	:	:
6										:
			242				F	:		÷
										· · · · · ·
							ļ			<u> </u>
	Е	Boring terminated at 7 ft. al due to strong Cementation		1			[			į
	Refus	al due to strong Cementation					<del> </del> i			<u>:</u>
8							<u> </u>			<u>.</u>
							l			<u>:</u>
							† i i	:	:	:
							-	:	:	
10										
10								• • • • • • • • • • • • • • • • • • • •	• • • • • • • •	<u> </u>
										· · · · · ·
										÷
							·			į
							ļ <u>.</u>			: :
12										į.
										:
							F : : : : : : : : : : : : : : : : : : :	:	:	:
							- : :	!	:	:
								• • • • • • • • • • • • • • • • • • • •		:·····
							<u> </u>			<u> </u>
14							<u> </u>			<u> </u>
							[			<u>.</u>
							[			<u> </u>
				1	1	_	· · · · · ·	-	· · · · ·	-

			PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT N	IO.: _	9	9821	
			CLIENT: Shea Homes Limited Partnership									
	{	( #role 🔨 )	PROJECT LOCATION: 67th Avenue and Jomax I	Road								
			LOCATION: See Site Plan				_ [	ELEVATION	I:			
	. ^		DRILLER: JKI Solutions				ı	LOGGED B	Y:	T	MP	
	LO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe						DATE:	: 01	1/10/20	020
		No. TP12		FTER 24	HOL	JRS:	¥			IG> _C		
ŀ			·							RESUL		
	£ £			Graphic	Sample No.	≥ ₹	% < #200	Plastic Limi		\L30L		uid Limit
	Depth (feet)		Description	l ap	<u>۾</u>	Blow Counts	##   V	Water Cont			Liqu	aid Liiiit
ı					0)	L	%	Penetration		//////		
	0							10	20	30	40	50
		(GC) Clayey Gravel, lov	w-medium plasticity, red brown, slightly damp						:	:	:	:
ı								F ::::::	:	:	:	:
نو									:	:	:	:
ē								· · · · · · <del>:</del> · · · · ·	:		:	
ξ		Soil	l transitions to light brown	7.77				F				
ě	2	Encour	ntered moderate Cementation	12/2/2				<u> </u>	. <b>:</b>	.:	<u>:</u>	. :
ii ii				7				[ <u>:</u>	<u>:</u>		<u>:</u>	
ij				12/2/2				<u> </u>	:	:	:	:
rtains only to this boring and should not be interpreted as being indicitive of the site.								<u> </u>	:	:	:	:
ğ,								:	:	:	:	:
g g								[ :	· <del>:</del> · · · · ·	::	:	::
rete	4	D	1in4in-4-1-4-1-4-1-4-1-4-1-4-1-4-1-4-1-4-1-4-	<b>V #</b> /•				<u> </u>				
ē l		Befusal due to Gra	Foring terminated at 4 ft. avel and Cobbles and strong Cementation						. :	.:	.:	
Ë		Refusal due to Gra	iver and coopies and strong comentation					[ <u>:</u>				
륗								<u> </u>	:	:	:	:
٥								:	:		:	:
Į Į	6								:	:	:	:
g S	-								:		÷ · · · ·	
gar									· : · · · ·	• į • • • • •		
Ë											÷	
ğ										.;	.;	
量								<b>-</b>	. į			. į
<u>₹</u>	8							l	:		:	
ĕ												
äi									:	:	:	:
Pe l									. :		÷ · · · ·	
This information pe									• • • • • • •	• ! • • • • •	· :	· :· · · · ·
mat								F				
훁┃	10							L				
isi									: 			
Ė∥								<u> </u>				
- [								<u> </u>				
ı								[	:		:	:
- 1								[	• • • • • •	• 🗓 • • • • • •	÷ · · · ·	• 🗄 • • • • • •
ı	12							<u> </u>				
J								<u>[</u>	. ;			
- [												
J								<u> </u>	. ;	.;	<u>:</u>	
								ļ :				
	14								:	:	:	:
ı								F			:	:
								ļ				
- [						<u> </u>	L		<u> </u>		<u> </u>	· <u> </u>

			PROJECT: Aloravita - Phases 3 & 4				_ [	PROJECT NO.:	982	1
			CLIENT: Shea Homes Limited Partnership							
	{	( Iro e X )	PROJECT LOCATION: 67th Avenue and Jomax I	Road						
	·		LOCATION: See Site Plan				_ ī	ELEVATION:		
	. ^		DDULED. HYLG 1 d				_	LOGGED BY:	TMP	,
	LO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe				_	DATE:		
		No. TP13	DEPTH TO - WATER> INITIAL: ₩ A	FTER 24	HOL	JRS:	<u>*</u>			
				т —				TEST RE		•
	ŧ÷			Graphic	Sample No.	≥ ₹	< #200	Plastic Limit		iauid Limit
	Depth (feet)		Description	l ga	E 2	Blow	<del>   </del>	Water Content -	, -	iquiu Liiiii
					0)		%	Penetration -		
	0							10 20 30	40	50
		(SC) Clayey Sand with	Gravel, low-medium plastiticy, brown, slightly					l		
			damp	////					:	:
<u>ë</u>				////				- :	:	:
he s				////					:	:
oft								[·····i		
ive	2	Fncou	ntered moderate Cementation	/////				L		
dicit		Encou	morea moderate comentation					[		
gin								[ <u>:</u>		
ğ		I.	Boring terminated at 3 ft.	17.7.7	1			<u> </u>		:
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		Refusal due to Gra	avel and Cobbles and strong Cementation					ļ : i ii		:
ted	4		C						•	
pre								<u> </u>		:
nter										
Б Б										
рţ								[		
밁								<del>-</del> :		
sho	6									
and										
gu										:
bor									:	:
his										
to								[·····································		
힏	8							<u></u>		
us (								[;;;.		
ertai										
ď								fi.		;
atio									:	:
E	10								:	:
ΪŢ								<b>T</b>		
This										
								[		
								<u> </u>		
	12							L;		
								I i		
								f : : : : : : : : : : : : : : : : : : :		
								<u> </u>	:	:
								[·····································		
	14							F		
								[		
								[		
		l		1		1			•	•

1			PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:	9821
			CLIENT: Shea Homes Limited Partnership						
	{	(FoleX)	PROJECT LOCATION: 67th Avenue and Jon.	ax Road					
	,		LOCATION: G G' DI				E	ELEVATION:	
			DDILLED. IVI Calastiana					LOGGED BY:	
	LO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DATE:	
		No. TP14	DEPTH TO - WATER> INITIAL: ₩		4 HOL	JRS:	¥	CAVING>	
								TEST RES	
	£ £			Graphic	Sample No.	× tr	% < #200	Plastic Limit	
	Depth (feet)		Description	jap	E 2	Blow Counts	¥#	Water Content - •	1 Elquid Ellilli
					0,	oxdot	%	Penetration -	
	0			# X   X				10 20 30	40 50
		(GM) Silty Gra	vel, non-plastic, brown, slightly damp					l	
					1				: :
<u>ię</u>		Ena	countered Weathered Rock					l- : : : : : : : : : : : : : : : : : : :	:
je s		Elic	Sountered weathered Rock		1				: : : : : : : : : : : : : : : : : : : :
of t					$\cdot$			[·····i	
tive	2	T	Paring terminated at 2 ft		4			F	
dici		B   Refusal due	Boring terminated at 2 ft. to Weathered and Fractured Rock		1			[ <u>.</u>	
É		1 Corabar due			1			[ <u>i</u> ii	
ë								<u> </u>	
as p									: :
ted	4								: :
bre.									: :
uţe								ļi	
용									
헐								[	
밁								<u> </u>	
ş	6							L	
and								l	
ing									
ᅙ								F : : : :	: :
this									
ţ.	8								
ē	•							F	
ins								ļi	
erta									
e G								[ <u>;</u>	
nati								ļ	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	10							L	
is in									
Ē									
					1			[·····································	
	12							<b></b>	
					1			[	
					1			[	
								ļi	
					1			<u> </u>	
	14				1				
					1				
								F	
								<u> </u>	····

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT NO.:	9821
Ι.		CLIENT: Shea Homes Limited Partnership						
{	(#ro/e/A)	PROJECT LOCATION: 67th Avenue and Jom						
		LOCATION: See Site Plan					ELEVATION:	
lLo	G OF BORING	DRILLER: JKI Solutions				_ L	LOGGED BY:	
		DRILLING WILLIAMS. HOWARD 3103 DACKHOC					DATE:	
	No. TP15	DEPTH TO - WATER> INITIAL:	AFTER 24	HOU	JRS:	¥	CAVING>	
도요			<u>_i</u> 2	e Se	د ts	#200	TEST RES	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	#×%	Water Content - •	— Liquia Limit
				S		%	Penetration -	
0							10 20 30	40 50
	(GM) Silty Gra	vel, non-plastic, brown, slightly damp						
								<u>:</u>
							- : :	
		W 4 17 1 1 1 1 6 1 1						: :
2	Encountered highly V	Weathered Rock and moderate Cementation					: :	: : :
							<u> </u>	
								: : :
							·	
4	Encountered W	eathered Rock and weak Cementation					<b></b>	
	Encountered W	cumored frock and weak comentation					<u> </u>	
	В	oring terminated at 5 ft.					ļii	
	Refusl due to W	oring terminated at 5 ft. eathered Rock and strong Cementation					ļi	
6							L	
							l	
							<b>!</b>	
							F : : : : : : : : : : : : : : : : : : :	: :
								: : : : : : : : : : : : : : : : : : : :
8								
								: :
							F ::::::::::::::::::::::::::::::::::::	
							i  i	
L							<u> </u>	
10							<u> </u>	
$\vdash$							ļ	
							[	
							<u> </u>	
12							<b></b>	
							[	
							[	
							<u> </u>	
							ļ <u> </u>	
14								
							F : : : : : : : : : : : : : : : : : : :	
1								
1								

1			PROJECT: Aloravita - Phases 3 & 4				F	PROJECT NO.:	9821
			CLIENT: Shea Homes Limited Partnership						
	4	(FoleX)	PROJECT LOCATION: 67th Avenue and Jomax	x Road					
			LOCATION: See Site Plan				E	ELEVATION:	
			DDILLED. HZI Caladiana					LOGGED BY:	
	LO	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DATE:	
		No. TP16	DEPTH TO - WATER> INITIAL: ¥	AFTFR 24	4 HOI	JRS:	•	CAVING>	
		110. 11 10	DEI III TO TAXTER III III E	7(1121(2	T	T	_		
	モ			흗	<u>e</u> .	s ₹	% < #200	TEST RES	
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	#   v	Water Content - •	Liquid Limit
				٥	S		%	Penetration -	
	0							10 20 30	40 50
		(SC-SM) Silty Clayer	y Sand, low plasticity, brown, slightly damp		7				
					1				: :
<u>ë</u>					1			-	
Je s		=							: :
₽		_			4			· · · · · · · · · · · · · · · · · · ·	
ïve	2	Fnoor	ntered moderate Cementation		:]			F	
dicit		I Encou.	mered moderate Comentation		1			[	
ă j					1			[ <u>.</u>	
ěiπ		D	Paring terminated at 2 ft	-haita	1			<u> </u>	
as b		Refusal due to Gra	Boring terminated at 3 ft. avel and Cobbles and strong Cementation					<u> </u>	: : :
jed i	4								
pre	•	=						F	
nter		=						ļi	
be i		-							
ğ								[	
밁		_						<del>-</del> :	:
sho	6							<b>_</b>	
and								l	
ing									
ğ								F	: :
this									
, to	8	-							
n o	0	-						F	
ins		=							
erts		=							
등		-						[i	
nati								<u> </u>	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	10							L	
isi								l	
ᇀ								†	
		=						- : : : : :	: : :
		1							
	10	1							
	12	-						<u> </u>	
		-						<u> </u>	
		-						[i	
		_						<u> </u>	
								ļ <u>i</u> i	
	14							L	
		1						F : : : : : : : : : : : : : : : : : : :	
		1							

		PROJECT: Aloravita - Phases 3 & 4				_ F	PROJECT	NO.:		9821	
		CLIENT: Shea Homes Limited Partnership							_		
•	(#ro/e/ <b>\</b> )	PROJECT LOCATION: 67th Avenue and Joma	ax Road								
		LOCATION: See Site Plan				_	ELEVATION				
lı ٥	G OF BORING	DRILLER: JKI Solutions				_	OGGED	_		TMP	
-~		DRILLING METHOD: Howard 310J Backhoe						DAT		01/10/2	.020
	No. TP17	DEPTH TO - WATER> INITIAL: ♀	AFTER 2	24 HO	URS:	÷			ING>		
۲ ۵			. <u>o</u>	<u>e</u>	_ s	8			TRESU		
Depth (feet)		Description	Graphic	Sample	Blow	% < #200	Plastic Li			— Liq	uid Limit
			ō	ß	۵ ا	%	Water Co Penetrati			71	
0							10	20	30	40	50
	(SC) Clayey Sand	with Gravel, low plastiticy, brown, damp						:	:	:	
							F :	:	:::::::::::::::::::::::::::::::::::::::	:	:
			7.7.7				- :	:	:::::::::::::::::::::::::::::::::::::::	:	:
			7.7.7				:	:	:	:	:
2	Encountered heavily	Weathered Rock and moderate Cementation	/:/:/				:	:	: : : : : : :	:	:
			777				<u> </u>				·
			/:///	3			<del>:</del>	· · · <del>:</del> · · ·			
<u> </u>			777				<u> </u>	<u>:</u>	:	· · · <del>.</del> · · · ·	· . <del></del>
							[ <u>:</u>				
			/:/://				<b>-</b>				
4	70	1 4 6	<u> ::/::/:</u>	<u>//</u>			<u> </u>				
	Befusal due to Weather	oring terminated at 4 ft. ed and Fractured Rock and strong Cementati	on				[ <u>:</u>				
	Refusal due to Weather	and I factured Nock and strong comentati						į			
							- :		;		
							<b> </b>				
6								:	:		
							:	:	:	:	:
							:		:	:	:
							· · · · · · · · · · · · · · · · · · ·				
8							<u> </u>				
·											
							F				
10							L				
							:				
							Ī <u>.</u>		;		
							<b>-</b>				
							ļ <u>.</u>				
12							:	:	:	:	
							Ī				
							F :: :	:	: : : : : : : : : : : : : : : : : : : :	:::::::::::::::::::::::::::::::::::::::	:
							  -  -	:	!		
									!		
							[·····				
14							<u> </u>				
							ļ <u>.</u>				
							<u> </u>	<u></u>	<u></u> .	<u> </u>	<u> </u>
				-	-						
1											

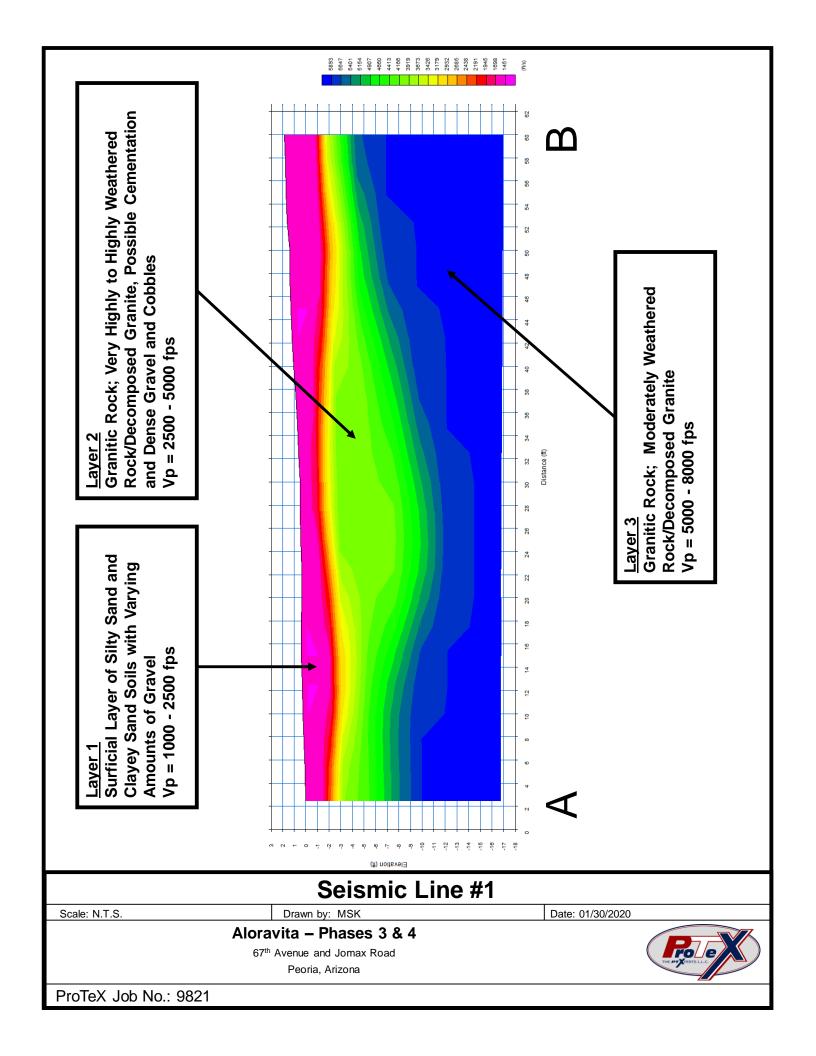
ſ			PROJECT: Aloravita - Phases 3 & 4				1	PROJECT NO.: _	98	321
			CLIENT: Shea Homes Limited Partnership							
	4	( #ro/e X )	PROJECT LOCATION: 67th Avenue and Jomax	Road						
			LOCATION: See Site Plan				_	ELEVATION:		
	. ^		DRILLER: JKI Solutions				_	LOGGED BY:	TM	<u>IP</u>
	LU	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DATE:	01/	10/2020
		No. TP18	DEPTH TO - WATER> INITIAL: ♀ A	FTER 24	HOI	JRS:	<u>*</u>	CAVIN	IG> 🐧	
- 1				٥ ا	O)		g	TEST	RESULTS	3
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit		Liquid Limit
	8 €		Decempation	👸	Sal	<sup>ක</sup> රි	× %	Water Content -		
ı	0							Penetration - 💯 10 20	30 40	50
ı		(SC-SM) Silty Clayey Sa	and some Gravel, low plasticity, brown, slightly	v HHH					: :	:
ı			damp					ļ		
نو			•					L		
e si		-			3					
듩		-						<del></del>		
ě	2	Γ	4 11 '-11 - W 4 1 D 1-		1			L		
ii ii		Encour	ntered highly Weathered Rock							
Ē					]			Ī		
èi r		Т	Soring terminated at 3 ft	- hritin	1			F		
This information pertains only to this boring and should not be interpreted as being indicitive of the site.		Refusal due to Weather	Boring terminated at 3 ft. ed and Fractured Rock and strong Cementation					ļ		:
ted	4		C					1 : :		:
pre-									: :	:
inte		-						F	:::	
8								- : : : : : : : : : : : : : : : : : : :		
2										
ğ									. !	
튛	6	-						<b>-</b>	- [	
an		-						<u> </u>		
Ę,										
s p		-							. ; ;	
ë								<del>-</del>		
출	8							<u></u>		
S o										
rtai									: : : : :	:
립								ł i i		
aţi								: :		:
ē l	10									
Ē								- : : : : : : : : : : : : : : : : : : :		:
Ē		-								:
١								- : :	- ! :	
		-								
								ļ	- [ ]	
ı	12	-								
J								ļ		
								[ <del>.</del>	· į · · · · · ;	
								ļ <u>.</u>		
								<u> </u>		
	14							L		
								[		·
ı		1		1			<u> </u>	I	- :	
J										
- 1										

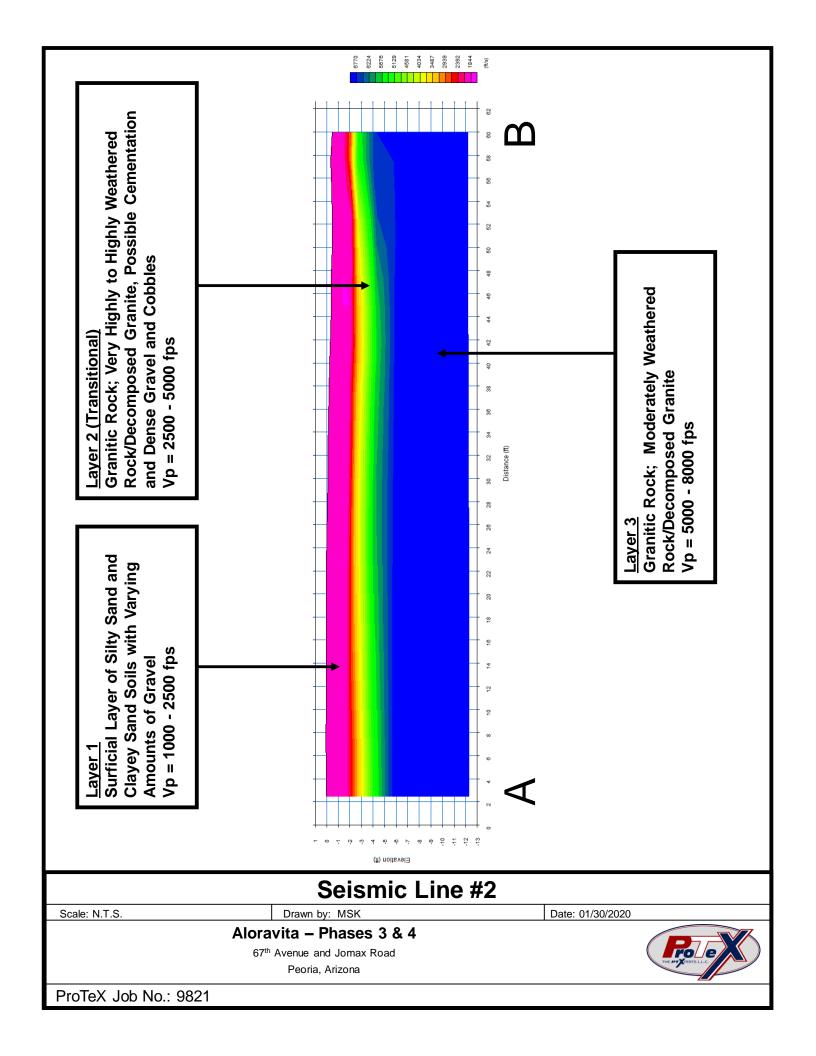
~	2 OF BODING	LOCATION: See Site Plan  DRILLER: JKI Solutions				_	ELEVATIO LOGGED E		,	ТМР	
_0	G OF BORING	DRILLING METHOD: Howard 310J Backhoe						DATI	E:(	01/10/2	2020
	No. TP19	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	HOU	IRS:	¥			ING> _		
<u></u>			l je	ble .	l ≱ t	% < #200	Plastic Lim		RESUL		quid Lir
(feet)		Description	Graphic	Sample No.	Blow Counts	* > 9	Water Cor	ntent -	•	,	10
$\dashv$						<u>°</u>	Penetratio 10		30	<b>4</b> 0	50
	(GM) Silty Grav	el, low plasticity, brown, slightly damp		20028	В	19	:	20	1	:	:
							- :	<u>:</u>	<b>:</b>		<u>:</u>
								<u>:</u>	:		
2							<u> </u>				<u>:</u>
							<u></u>				
								<b>:</b>			
								<b></b>			
4							<b>-</b>				
								:		• : : • • • •	
							- :			• 🗄 • • •	•
							L				
6											
		ntered some Cemented chunks					:	:	:	:::::::	:
	Enco	untered Gravel and Cobbles									
							<b>-</b>				
8	Encour	stared large Computed shoules					<u></u>	į		<u>;</u>	
	Encour Enco	ntered large Cemented chunks untered Gravel and Cobbles									
								į			
							<b>+</b>				
10	В	oring terminated at 10 ft.					F				
		37.11.5						• • • • • • •			
							- :	· · · · · · · · · · · · · · · · · · ·			:
								:	:	:	:::
2									!		
							- :				
								į			
L <b>4</b>							<u> </u>	į			
=							[			;	
											:

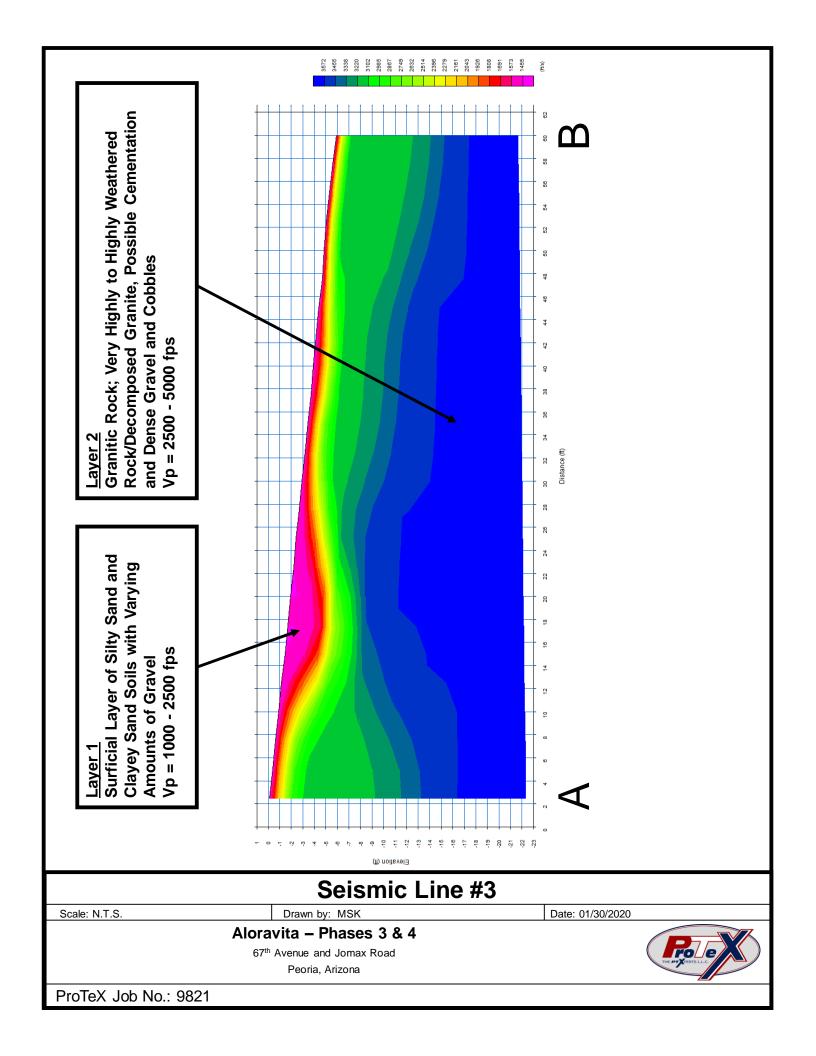
			PROJECT: Aloravita - Phases 3 & 4				_ I	PROJECT NO.: _	982	21
			CLIENT: Shea Homes Limited Partnership							
	(	( #role / A )	PROJECT LOCATION: 67th Avenue and Joma	x Road						
			LOCATION: See Site Plan				_	ELEVATION:		
	1.0	G OF BORING	DRILLER: JKI Solutions				_	LOGGED BY:	TMI	<u>P</u>
	LO		DRILLING WETTOD. Howard 5103 Backhoe					DATE:		0/2020
		No. TP20	DEPTH TO - WATER> INITIAL: ₩	AFTER 24	HOI	JRS:	<u>*</u>	CAVIN	G> <u> </u>	
	_			o	υ	, n	g	TEST R	ESULTS	
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit ├──		Liquid Limit
	اے ت		•	ö	Sa	8 "ا	×   %	Water Content - • Penetration -	<b>)</b> 7777773	
	•								30 40	50
		(SC-SM) Silty Claye	y Sand, low plasticity, brown, slightly damp		0028	ŧ	23	: :	: :	:
					]					:
;									<u> </u>	
					1					
5					1			·	· · · · · · · · · · · · · · · · · · ·	
2	2							<u> </u>		
								<u> </u>	<u>.</u>	
								i	<b>:</b>	<b>:</b>
								<u> </u>	<u>.</u>	
2					1			ļ	<u>:</u>	<b>:</b>
ובח	4				1			L	<u>.</u>	
This information pertains only to this boring and should not be interpreted as being indictive of the site.			l transitions to light brown					l	ii.	
		E1	ncountered some Cobbles					F : :		:
5								- : :		:
					1					:
3	6				1				: :	:
2			Soil transitions to brown		4				: ::	
6		E <sub>1</sub>	ncountered some Cobbles					F		
									· · · · · · · · · · · · · · · · · · ·	
3					1			[·····	!····i	
Î	8							<u> </u>	ļķ.	
2								ļ	ļķ.	
2					1				· · · · · · · · · · · · · · · · · · ·	
5									· · · · · · · · · · · · · · · · · · ·	
2					1			<del> </del>	ļ	
	10							<u> </u>	ļ	
		В	oring terminated at 10 ft.					[	<u>.</u>	
									; ;	
								ļ <u>.</u>	<u>.</u>	
								ļi		
	12							L	į <u>i</u> .	
								F		
								<u> </u>	: ::	
								[	: : : : : : : : : : : : : : : : : : : :	
	14									
	14							F	ļ <u>.</u>	
								ļ	<u> </u>	
								<u> </u>	<u> </u>	
	20-	30' undocumented stock	pile							
		•								

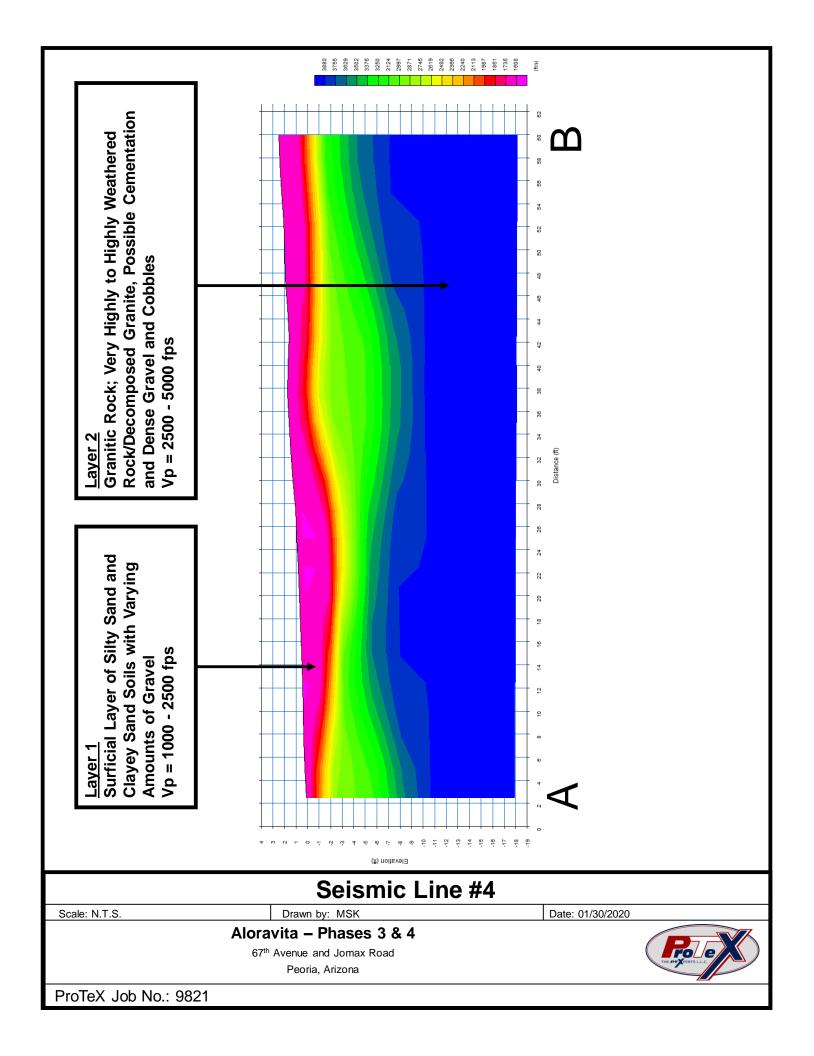
			PROJECT: Aloravita - Phases 3 & 4				I	PROJECT NO.: _	98	321
			CLIENT: Shea Homes Limited Partnership							
	{	( Fole X )	PROJECT LOCATION: 67th Avenue and Jomax 1	Road						
			LOCATION: See Site Plan				_ ı	ELEVATION:		
	10		DRILLER: JKI Solutions				_ 1	LOGGED BY:	TM	ſP
	LU	G OF BORING	DRILLING METHOD: Howard 310J Backhoe					DATE:	01/	10/2020
		No. TP21	DEPTH TO - WATER> INITIAL:   ✓ A	FTER 24	HOL	IRS:	<u>*</u>	CAVIN	IG> <u>C</u>	
							0	TEST F	RESULTS	 S
	Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200			Liquid Limit
	음을		Description	Gra	San N	<u> </u>	> %	Water Content -		
	_						<u>۰</u>	Penetration -		. 50
	0	(SC) Clayer Sand with	Gravel, low-medium plastiticy, brown, slightly	1:7:7:7	0028	ļ #	23	10 20	30 40	50
		(SC) Clayey Sand With	damp	////				<u> </u>		
نہ			damp							
site				////				<u> </u>		
the								ļ		·
e o	2			/////					: :	:
i <u>‡</u>								i :	: :	:
indi								: :	: :	:
ing									• : • • • :	:
s be									•	· · · · · · · · · · · · · · · · · · ·
g								·····	• • • • • • • • • • • • • • • • • • • •	
rete	4	Fn	acountered some Cobbles					<b>-</b>		
terp			reconnected some ecotoles	/////				<u> </u>		
ĕ										
t t								- : : : : : : : : : : : : : : : : : : :		
힏								ļ		
ş, Por	6									:
ğ										
ng a								: :	: : :	:
bori										
tains only to this boring and should not be interpreted as being indicitive of the site.										
to t								·····	-	
۱ď	8							<u> </u>	- [ ]	
us (								<u> </u>	-	
erta										
ᇫ		В	Boring terminated at 9 ft.	1 7 7 7				<u> </u>		
latic		Refusal due to highly	Weathered Rock and moderate Cementation					<b>-</b>		
This information per	10		Possible Native							
s in										:
[ ]								<u> </u>	: : :	:
								- : : : : : : : : : : : : : : : : : : :	• ! • • • • • • • • • • • • • • • • • •	:
									• ! • • • • • • • •	• • • • • • • • • • • • • • • • • • • •
								<u> </u>	• [ • • • • • • • • •	
	12							<u> </u>		
								[		
								<u> </u>	.j	
								<b></b>		
	14									:
									:	
								· · · · · · · · · · · · · · · · · · ·	:::	:
								<u> </u>	• • • • • • • • • • • • • • • • • • • •	
	po	ssible stockpile								
	_									

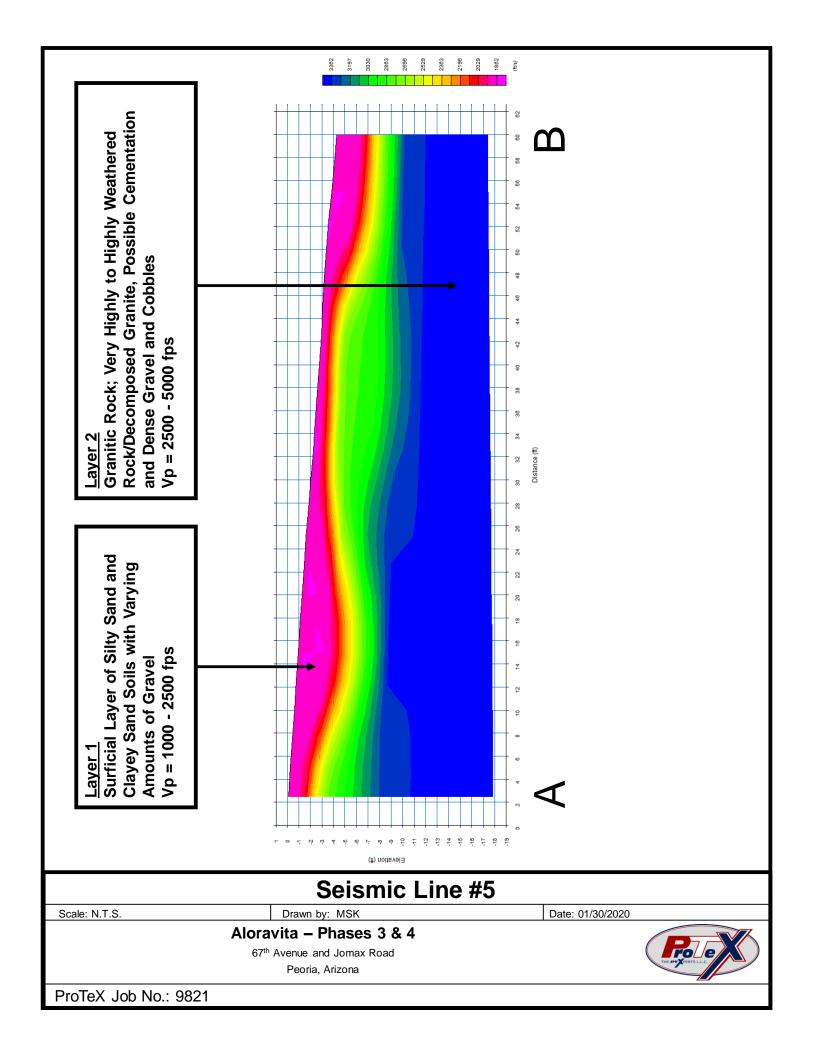
## Appendix D

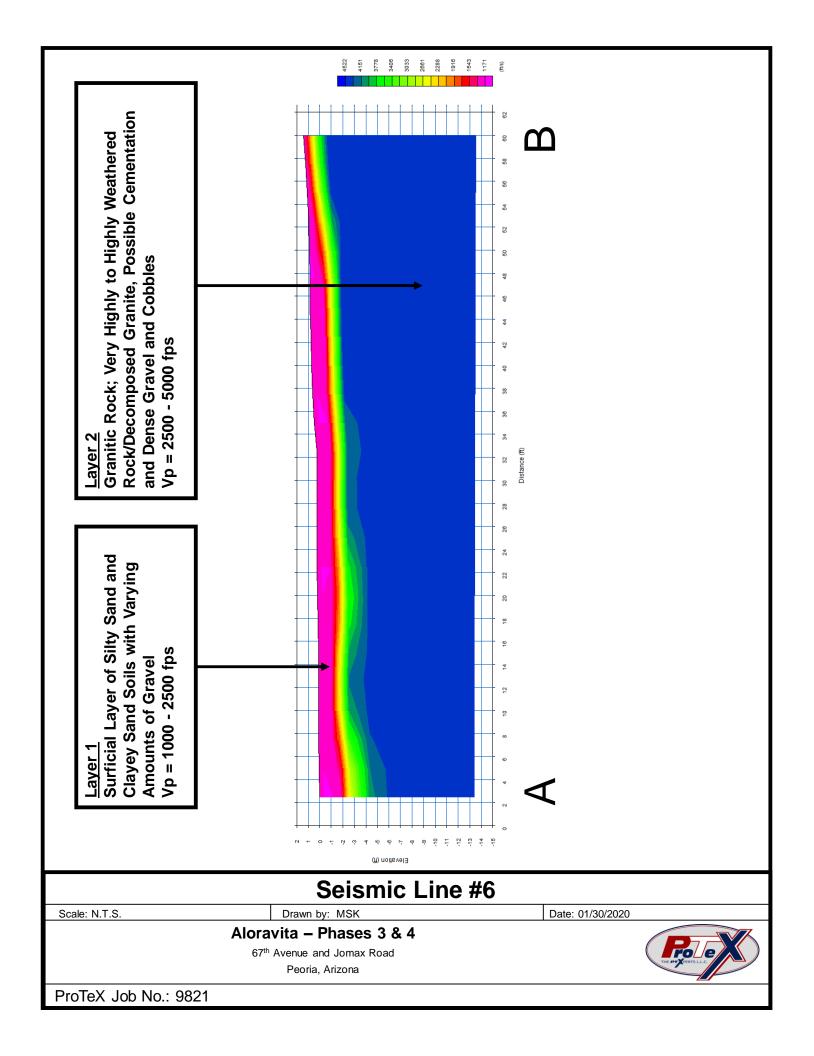


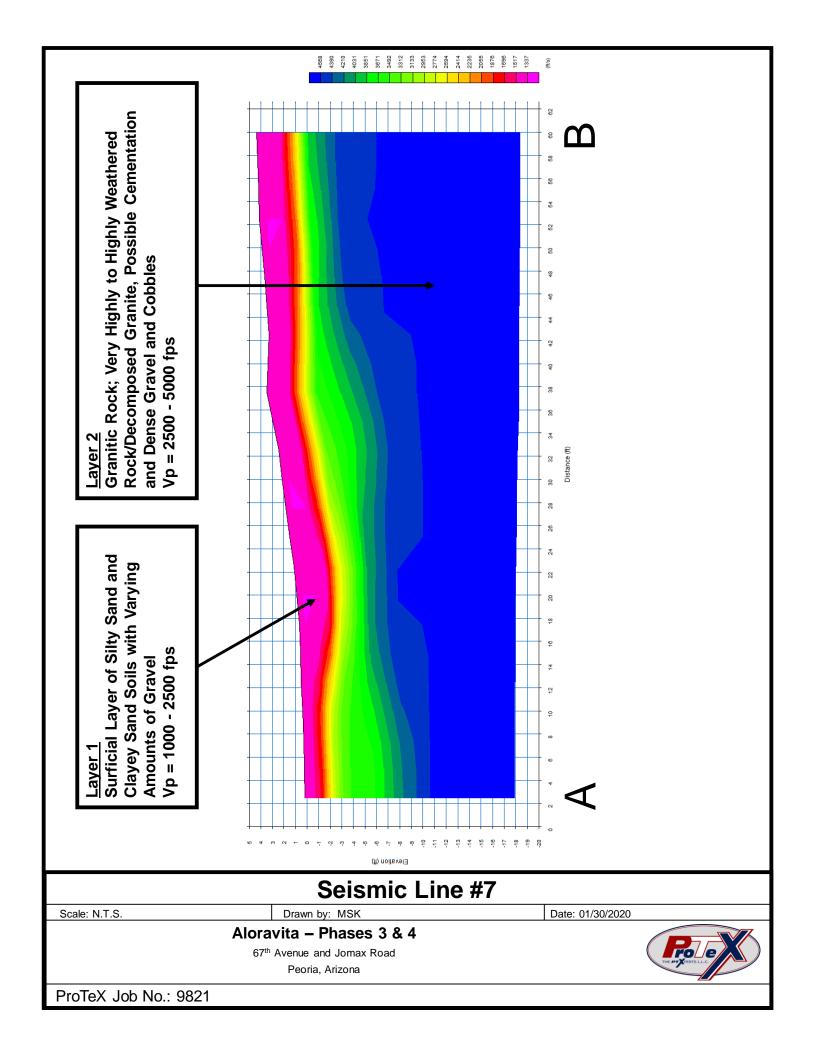


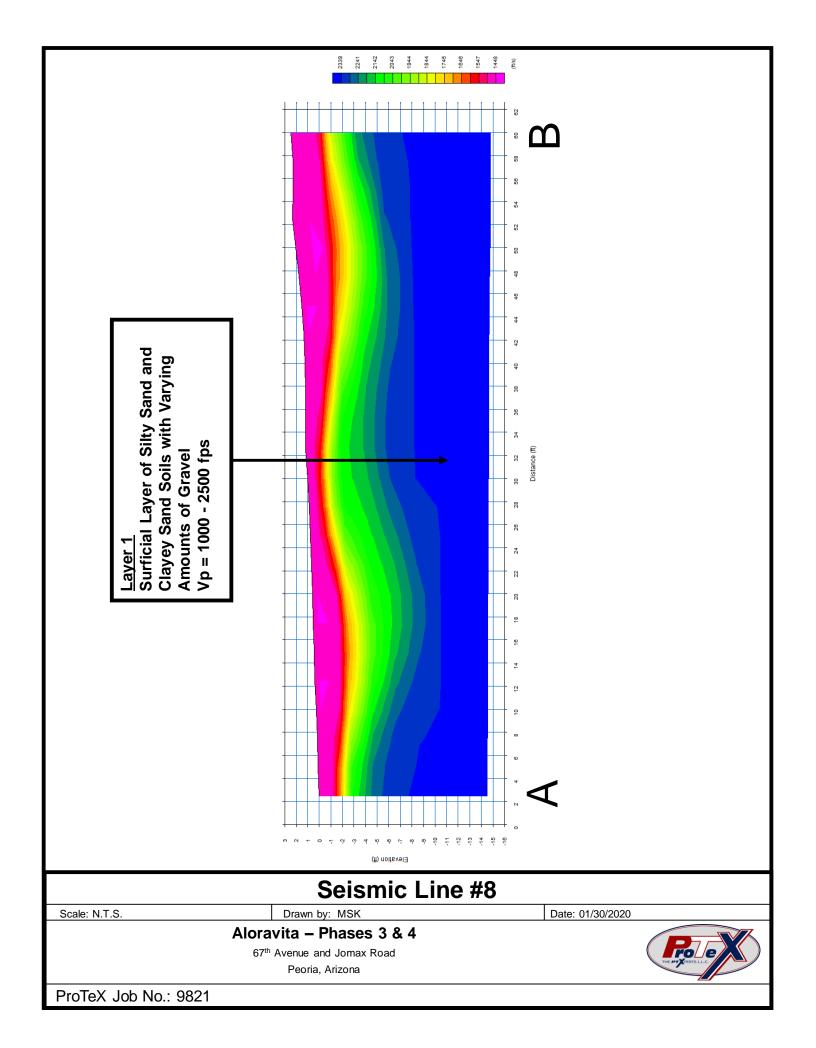


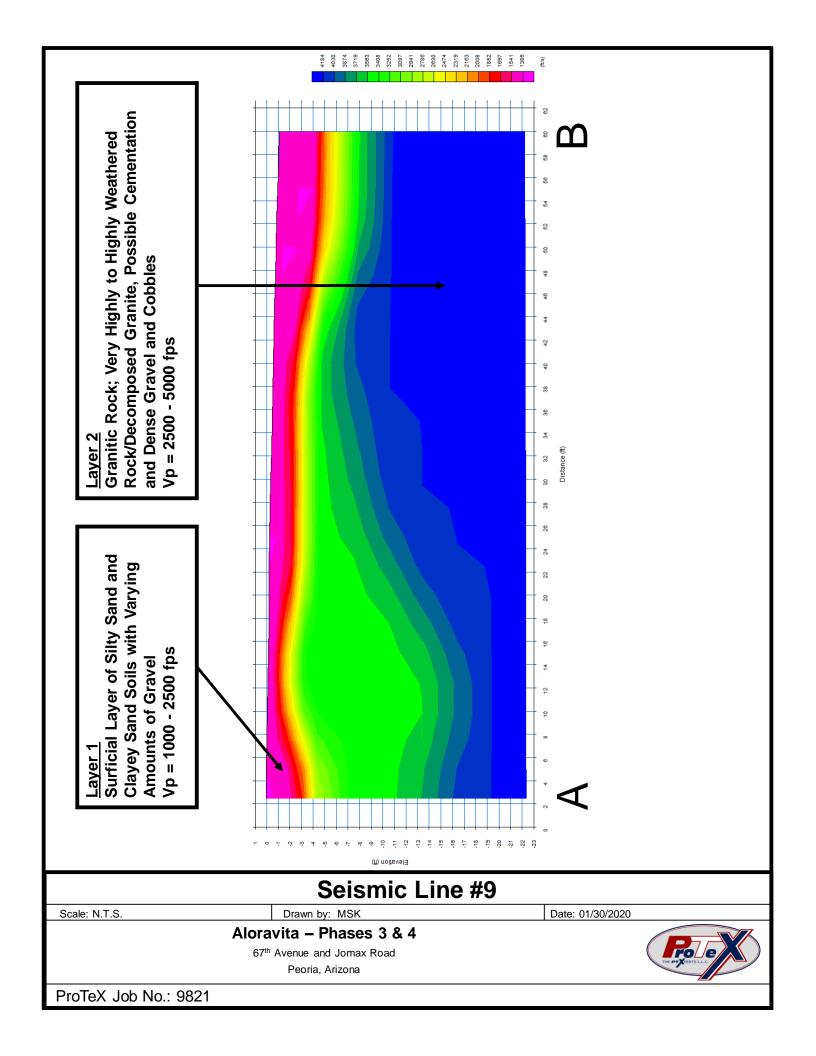


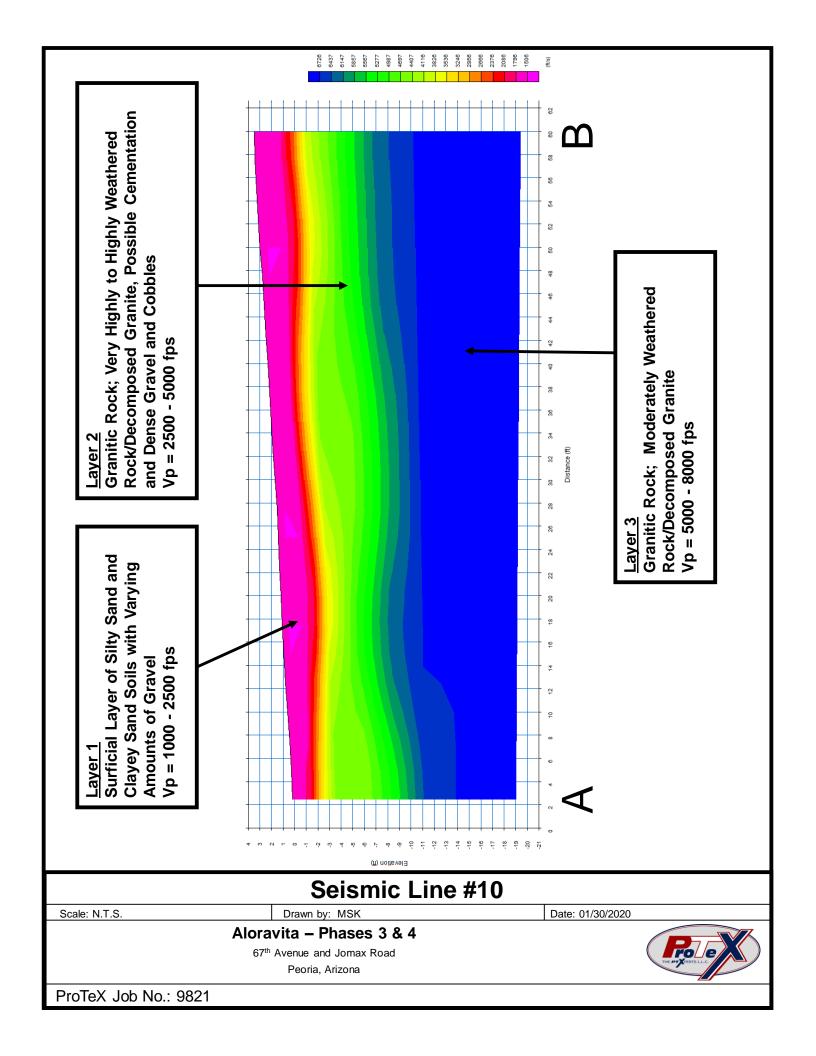


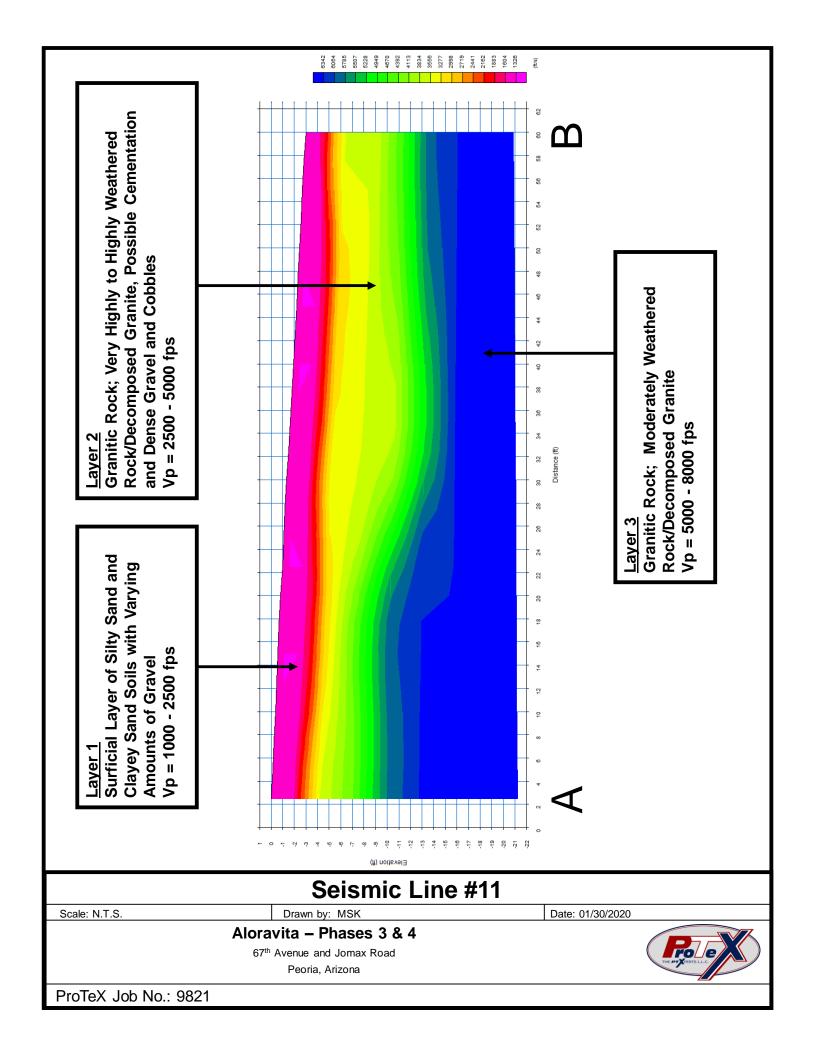


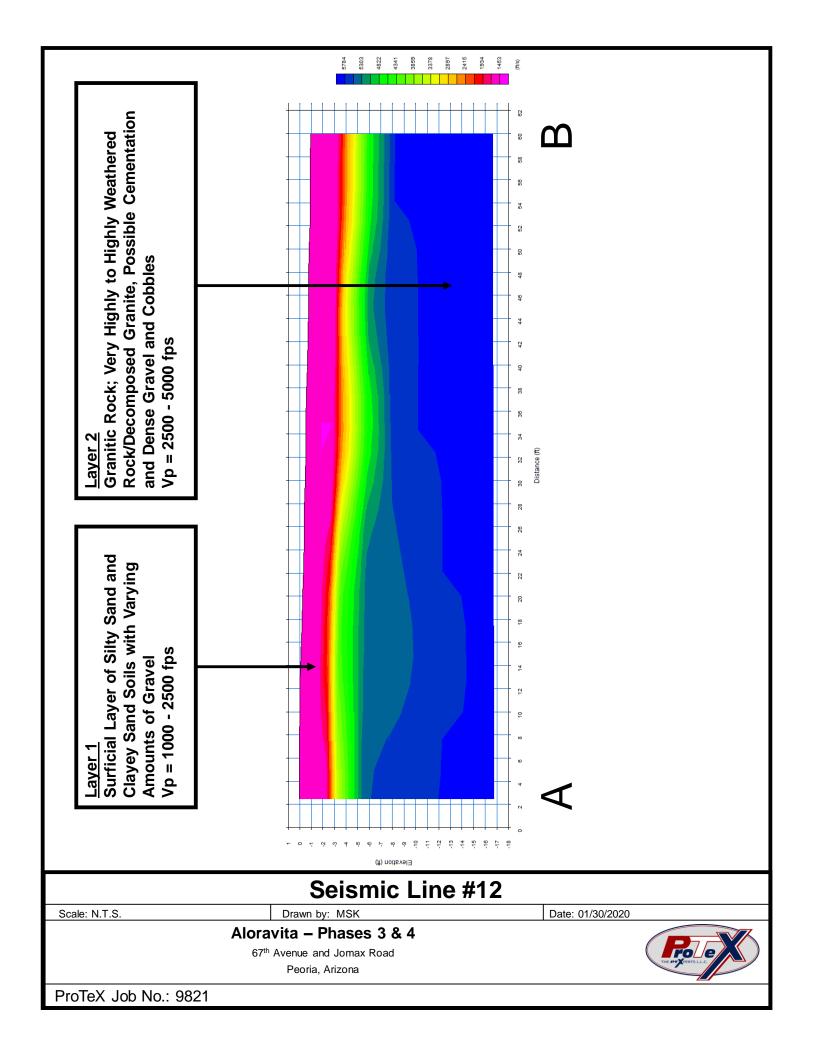


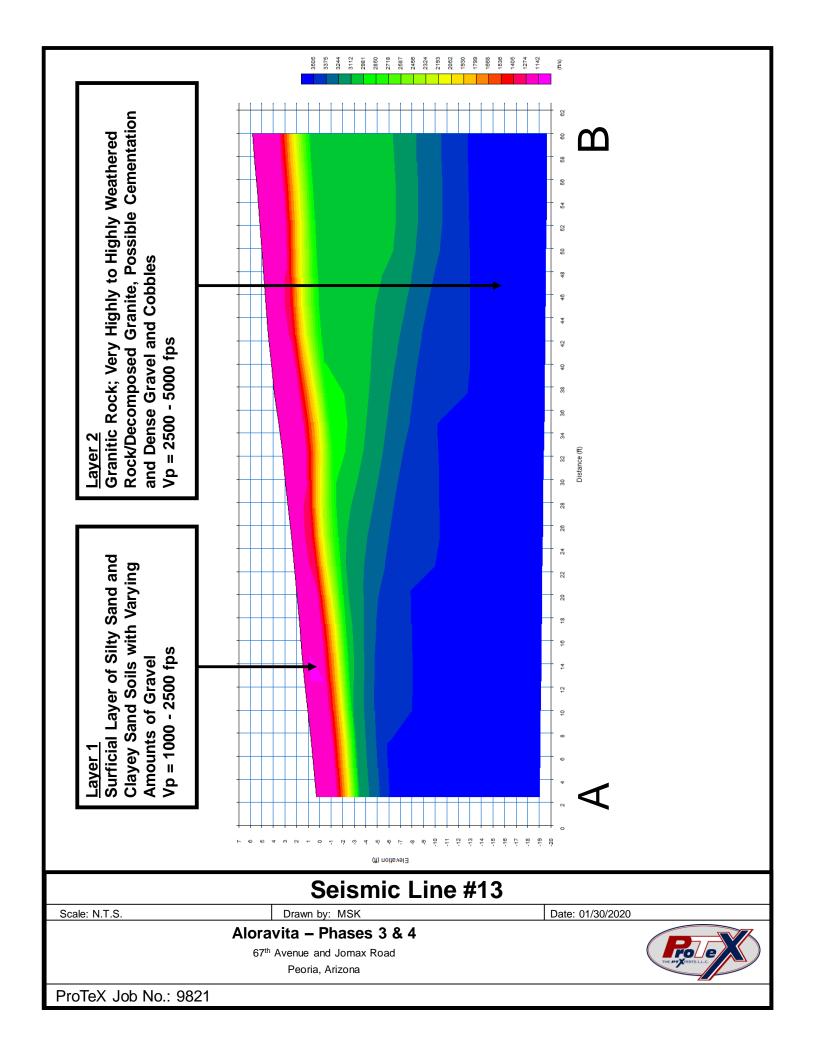


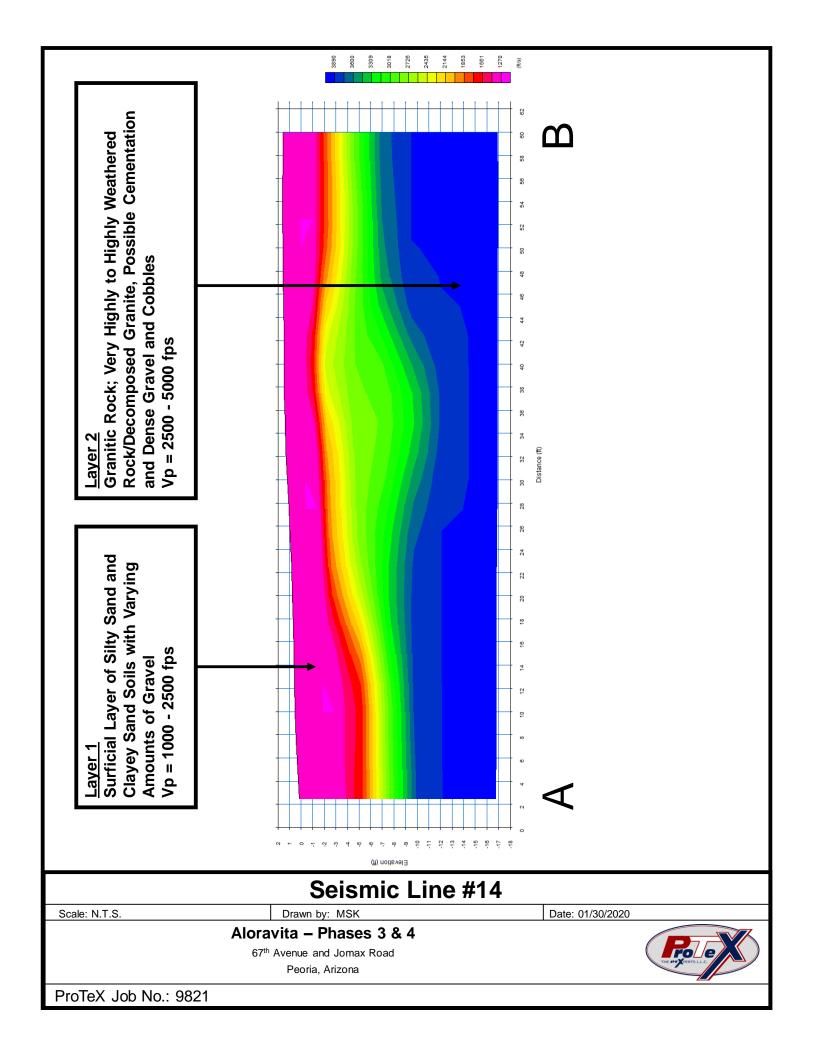


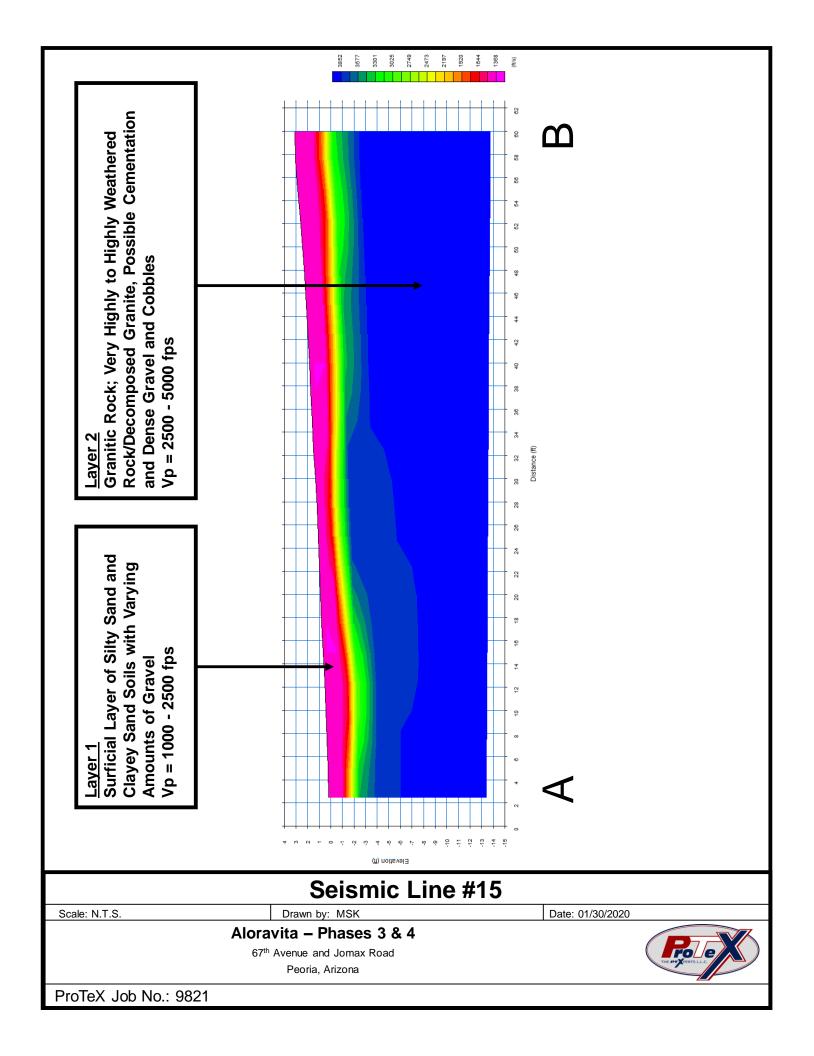


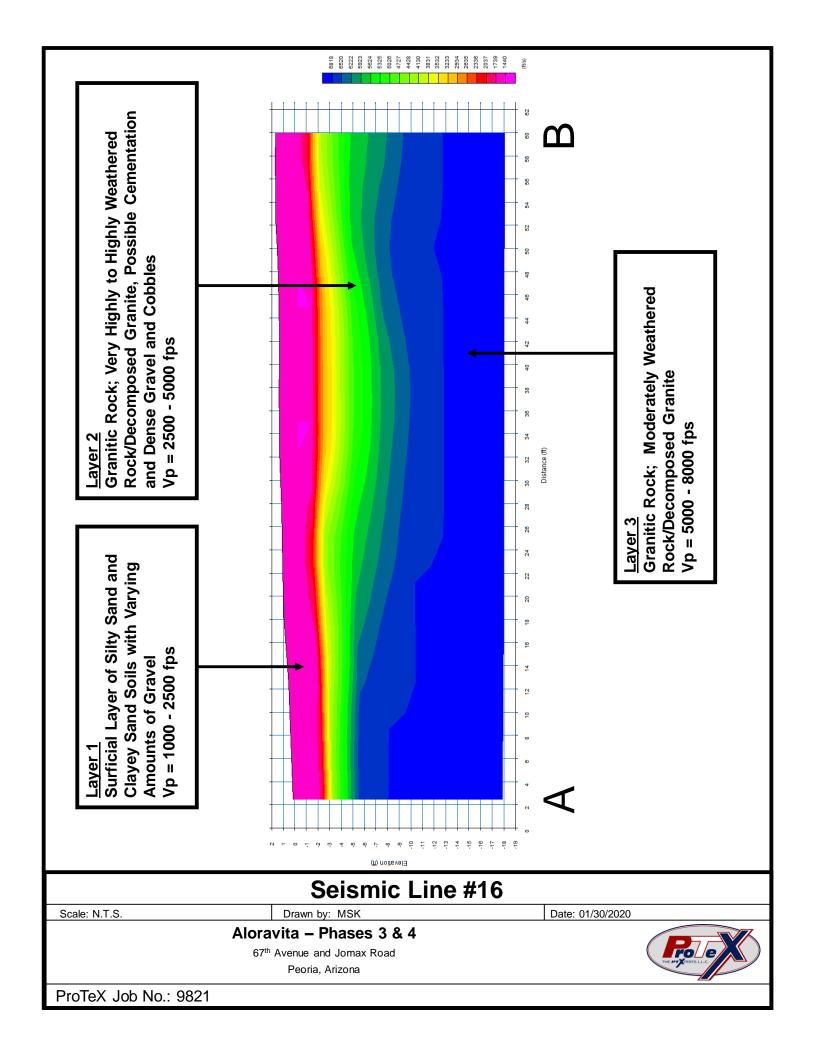


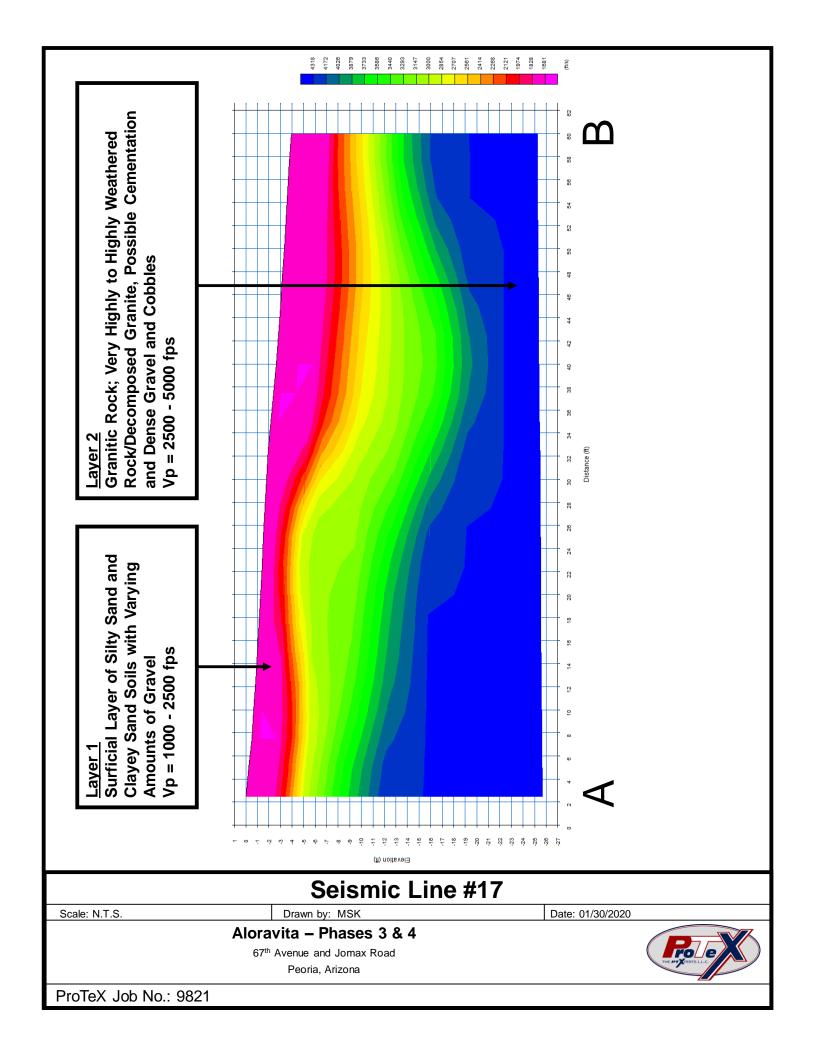


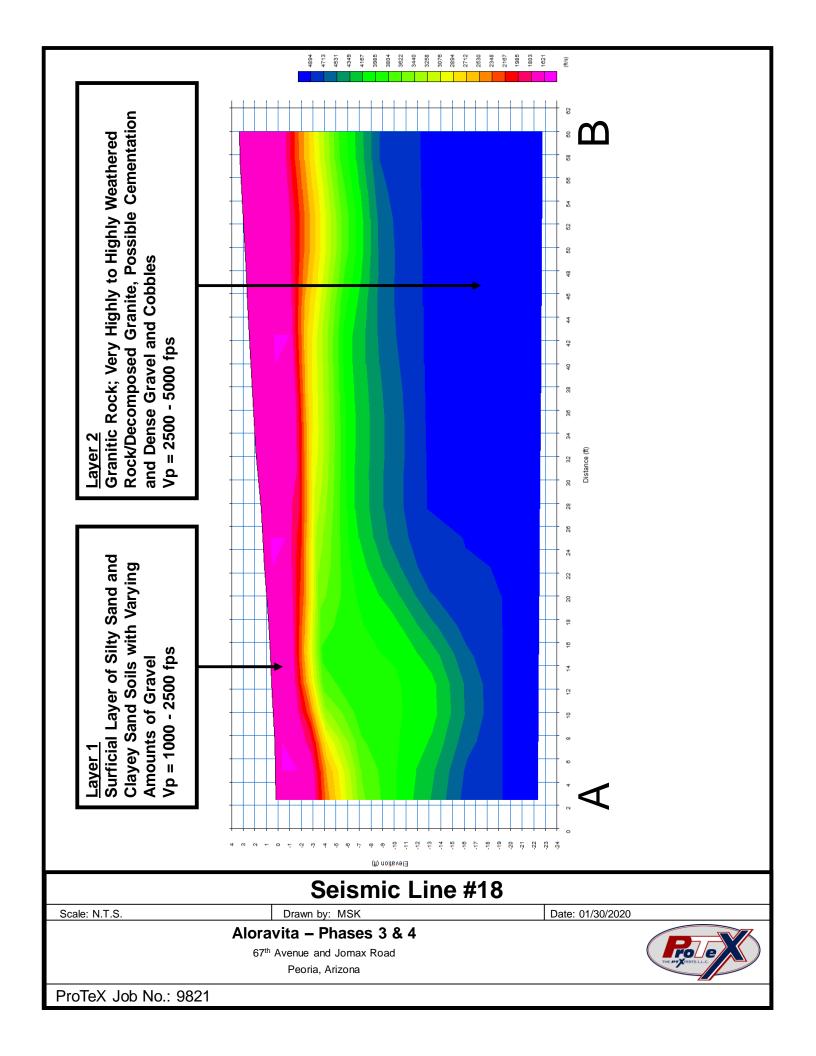


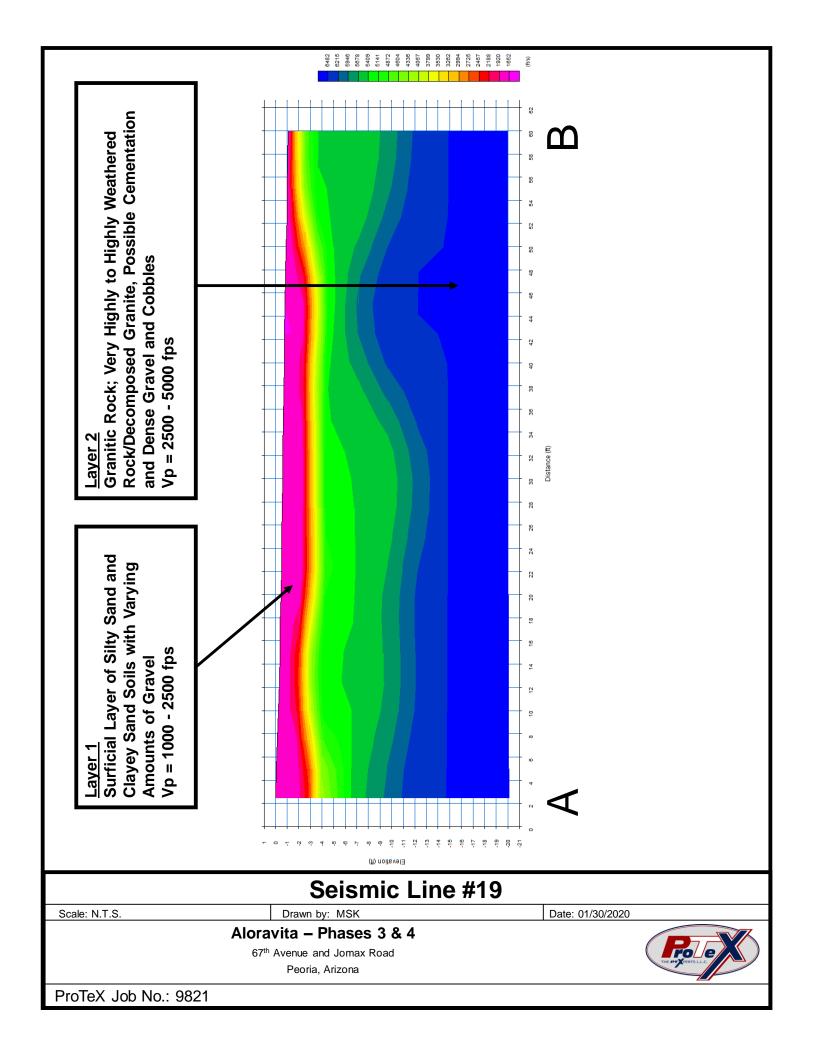


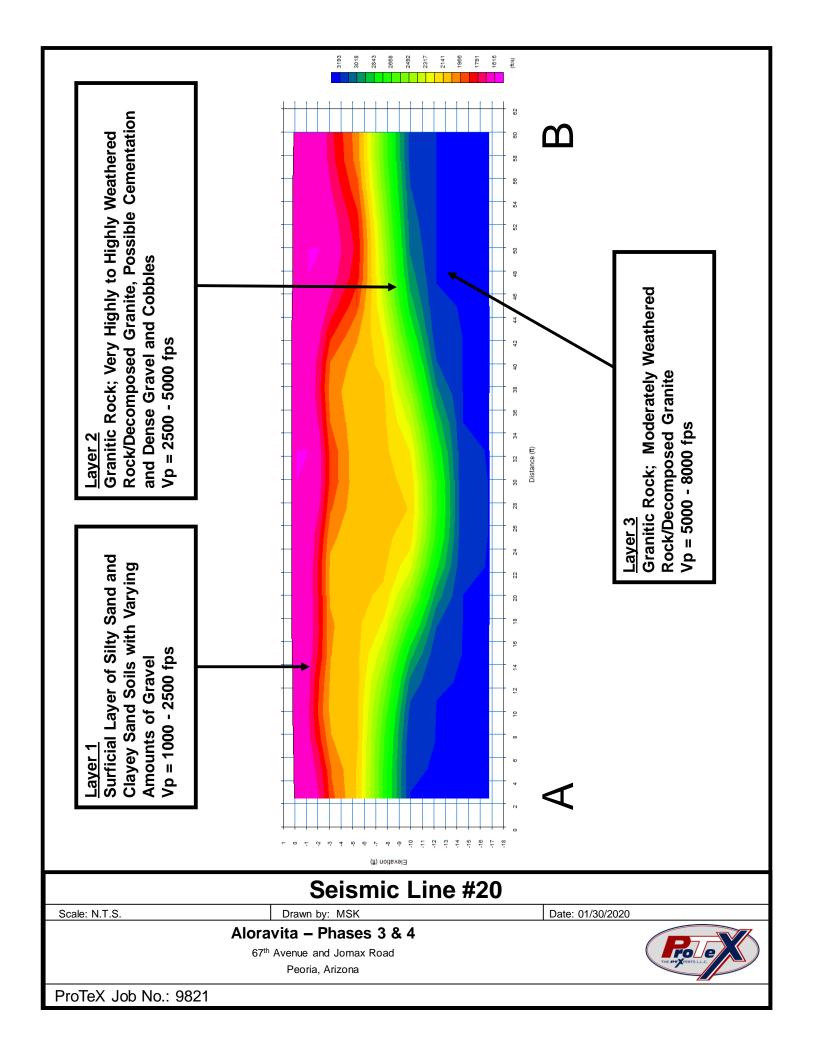












## Appendix E

## **Key To Soil Symbols and Classifications**

## Common Strata Symbols

High plasticity	
clay	
(CH C)	

Inorganic silts and clays (CH-MH -- MC)

Low plasticity clay (CL -- O)

Low-high plasticity clays (CL-CH -- CO)

Silty low plasticity clay (CL-ML -- CZ)

(FILL -- F)

Clayey gravel (GC -- 08)

Clayey sand and gravel (GC-SC -- DO8)

Silty gravel (GM -- Z8)

Silty clayey gravel (GM-GC -- ZO8)

Silty sand and gravel (GM-SM -- 08)

Poorly graded gravel (GP -- G)

Poorly graded gravel

with clay (GP-GC -- DGO3) Poorly graded gravel

(GP-GM -- DGZ3)

Poorly graded gravel (GP-SP -- :G)

Well graded gravel (GW -- 83)

Well graded sand (SW -- D)

Well graded sand with clay (SW-SC -- DR)

Well graded sand with silt (SW-SM -- D=)

æ	Well graded gra
	with clay
	/CM-CC 9201

Well graded gravel with silt (GW-GM -- 83Z)

Well graded gravel/ clayey gravel (GW-GP -- 83G)

Well graded gravel and sand (GW-SW -- 83D)

(MH -- M)

Silt (ML -- Z)

High plasticity organic clays (OH -- 5)

Low plasticity organic silts

Basalt (or generic rock) (ROCK -- ])

Clayey sand (SC -- DO)

Silty sand

Poorly graded clayey (SC-SM -- :ZO)

Poorly graded silty fine sand (SM-ML -- :Z)

Poorly graded sand

Poorly graded sand with clay (SP-SC -- :R)

Poorly graded sand with silt (SP-SM -- :=)

Well graded sand with gravel (SW -- D9)

Silty sand with gravel (SM -- 09)

Clayey sand with gravel (SC -- DO9)

Relative Density of Cohesionless Soils (blows/ft)					
Very Loose	0 to 4				
Loose	5 to 10				
Medium	11 to 30				
Dense	31 to 50				
Very Dense	over 50				

Relative Degree of Plasticity (PI)					
Non-Plastic	0				
Low	1 to 7				
Low-Medium	8 to 14				
Medium	15 to 21				
Medium-High	22 to 28				
High	29 to 35				
Very High	Over 35				

Relative Proportions (%)					
Trace	5 to 10				
Some	10 to 15				
With	15 to 35				
And	35 to 50				

Particle Size Identification (Diameter)					
Boulder	8.0" or Larger				
Cobbles	3.0" to 8.0"				
Coarse Gravel	0.75" to 3.0"				
Fine Gravel	5.0 mm to 3.0"				
Coarse Sand	2.0 mm to 5.0 mm				
Medium Sand	0.4 mm to 2.0 mm				
Fine Sand	0.07 mm to 0.4 mm				
Silt	0.002 mm to 0.07 mm				
Clay	Less Than 0.002				

